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A REVIEW OF SOME GALERUCINE BEETLES WITH EXCISED
MIDDLE TIBIAE IN THE MALE

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Unlike the Alticini, many of the Galerucini do not have outstanding characters. This is particularly true of such genera as *Diabrotica*, *Neobrotica*, and *Luperodes*, and has led to many really diverse beetles being included under these generic names. Yet any attempt to create a better classification is bound to result in a somewhat artificial arrangement because these beetle groups overlap in certain peculiarities and in other ways possess traits common to most Galerucini. There is one approach that can be used, which Horn (1893, p. 124) suggests when he remarks concerning *Phyllecthrus*: "Too many genera of Galerucini have been described from uniques without any published reference to sexual peculiarities which are often a guide to relationships when other characters cause doubt by their double indication."

There is a somewhat miscellaneous series of Galerucine beetles in which the male character is a cut-out area on the inner margin near the apex of the middle tibiae similar to the emargination in the front tibiae of Carabidae. Some of these beetles have been allocated to that all-embracing genus, *Diabrotica*, in spite of not having bifid claws, others to *Neobrotica*, others to *Phyllecthrus* and *Oroetes*, and I

have described under the name *Ectmesopus* a group of West Indian beetles—two of which had been described as species of *Luperus*—that have this character in the male. In the case of the majority of these beetles not only is there the male character of the cut-out middle tibiae, but also there is an abnormality of the antennal joints. All over the world there are Galerucini with queer male antennae, but the combination of these leg and antennal abnormalities in the male serves to make these particular beetles stand out from the bulk of the Galerucini closely resembling them in the female sex, in which the males and females are essentially identical. This paper is an attempt to bring together these beetles and consider their likenesses as well as differences.

In describing the genus *Phyllethrus*, LeConte (1865) states that he took the name from the Dejean (1837, p. 406) catalog. He used Dejean's form, *Phyllethris*, in his key in the first mention of the name, but two pages later, in his description of the genus, he used *Phyllethrus*, and subsequently described other species under that spelling, and that form of the name has persisted. LeConte listed the old Olivier species, *Galleruca dorsalis* Olivier (1808), given under *Phyllethris* in the Dejean catalog as *Phyllethrus dorsalis*, and added Say's *Galleruca atriventris*, now regarded as a color phase of *dorsalis*; he also described a smaller species, *P. gentilis*. In 1868 he added another species, *Phyllethrus nigripennis*, now regarded as a color form of *gentilis*. In 1884 he described *Phyllethrus texanus*, which is closely related to *gentilis* and considered by Horn as a variety of it. All of these species that LeConte described, as well as the original *dorsalis* of Olivier and Say's *atriventris*, have one point in common—the antennae in the male are 10-jointed.

In 1891 Jacoby described a new genus *Luperosoma* for an Ecuadorian species, *Luperosoma marginatum*. This had thickened antennal joints of the normal number (11) in the male. It resembled LeConte's species in the cut-out middle tibiae of the male. Later, Weise (1924) in the Junk catalog, synonymized it with *Phyllethrus*. Meanwhile, Horn (1893, 1896) described three species under *Phyllethrus*, *parallelus*, *schwarzi*, and *subsulcatus*, all with thickened antennal joints, 11 in number, and cut out middle tibiae in the male, as in Jacoby's genus, *Luperosoma*. In 1940 I described a group of tiny West Indian beetles, all very closely related to each other, with cut out middle tibiae in the male, as *Ectmesopus*. All but two of these species had abnormal antennal joints in the male, sometimes only thickened, but usually deformed in some way. One of the two that did not have the abnormal antennal joints had a slight difference in the length of the joints in the sexes, and in the other there seemed to be no difference at all, yet both of these species in color and structure were

very close to the rest of this homogeneous little group, so that the lack of these sex characters seemed only incidental and not at all comparable with the marked differences between the species of LeConte's genus *Phyllethrus* and Jacoby's *Luperosoma*. H. S. Barber, in fact, suggested to me putting Horn's much larger species, *subsulcatus*, *schwarzi*, and *parallelus*, into my West Indian *Ectmesopus*. But not only is there the much smaller size of *Ectmesopus* species, but also the shape of the prothorax is unlike that of LeConte's, Horn's or Jacoby's genera, in that the West Indian beetles have a smoothly convex prothorax without any hint of transverse depression. They form a distinct little group of beetles probably endemic in the West Indies, and it seems best to keep them separate. As above indicated, Horn's species fit better into Jacoby's genus *Luperosoma*.

In dealing with the Galerucini it has been my experience that in the sex characters of the males there is an infinite variety of forms, many so unusual as to merit generic recognition. Note the monotypic genus *Oroetes* described by Jacoby. In common with *Phyllethrus* and *Ectmesopus*, *Oroetes flavicollis* has notched middle tibiae in the male, but the male antennae somewhat resemble those of *Cerotoma* in being cut out, but in a different way from *Cerotoma*. Like *Cerotoma*, too, is the excavation of the face. This excavation of the face is also found in certain beetles at present ascribed to the genera *Neobrotica* and *Eucerotoma* as well as in species of the Asiatic and African genus *Palporena*. The prothorax in *Oroetes* in addition has a peculiar median tubercle in the male.

Another peculiar beetle is *Diabrotica cyanospila* Suffrian, which has both enlarged antennal joints and cut out middle tibiae in the male, and does not have bifid claws, the one character that always distinguishes the *Diabrotica* group. There is still another male character in *cyanospila* that I have not found in any of the others with notched middle tibiae, and that is a greatly enlarged hind femur in the male, so that it would seem almost like an alticid. I have found one other instance of such enlargement of the hind femora in the male, that is in *Leptoxena eximia* Baly, a monotype from the Andaman Islands. In this species also the male antennae are dilated. There are no notched middle tibiae, however, and the beetle itself has a quite different aspect. Suffrian describes *cyanospila* as an *Altica*-like beetle, although he does not mention the enlarged femora nor the dilated antennal joints, leading me to believe that he had examined no males. In his description of *Diabrotica semicyanea*, which follows the description of *D. cyanospila*, he stated that one specimen had a quite abnormal build of the last joints of the antennae in that the last joint is spoon-shaped and the preceding broadened. He believed it was a male of *semicyanea*. He did not mention in either case the excised middle

tibiae or enlarged femora. Although I have not seen any male specimen of this species, I think it is not unlikely another of this group, closely related, as Suffrian stated, to *D. cyanospila*, and possibly also with enlarged hind femora.

On searching through the list of species under section "P" in Gahan's (1891a, p. 418) table of *Diabrotica*, which is composed of species that may be distinguished by the peculiar structure of the antennae of the male, I have found two that have excised middle tibiae in the male. One of these, *D. amplicornis* Baly, seems to be another of the *Luperosoma* group in which Horn and Jacoby described species. In the other species, *D. dilaticornis* Baly, both the anterior and middle tibiae are widely emarginate, the emargination being unlike that of the group under consideration, but it has bifid claws, as in a true *Diabrotica*, and therefore cannot be considered one of the group of genera under discussion.

Among species of that heterogeneous genus *Neobrotica* occur several that differ from the type of the genus, *Neobrotica variabilis* Jacoby, in being smaller, oblong in shape, and more slender and with excised middle tibiae in the male. They do not have any peculiarity of the male antennal joints, in this respect being unlike most of the rest of this group. These species are *Neobrotica ruatanae* Jacoby and a closely related and undescribed beetle, and *Neobrotica sexplagiata* (Jacoby), the latter related to *Diabrotica nymphaea* Jacoby. The name *N. sexplagiata* covers a number of closely related species. Besides these are others from South America, so far undescribed, that fall into this group.

Jacoby has described still another genus with at least one species, *Platymorpha smaragdipennis*, having excised middle tibiae. In his other species, *P. variegata*, I am unable to detect any such character. In both, however, the male antennae are peculiar in that the third joint is very short and truncate.

Chapuis (1875, p. 163) included *Phyllethrus* with *Phyllobrotica* in his treatment of *Phyllobroticoides*, and separated them in his key by the epipleural characters. He stated that in *Phyllethrus* the epipleura are very narrow. LeConte rightly described the elytra as distinctly margined with the epipleura narrow and not extending to the tip. In *Phyllobrotica* the epipleura are either very narrow or wholly lacking. The genus *Phyllobrotica*, in spite of its worldwide range in the temperate Northern Hemisphere, is exceedingly homogeneous, the species all being closely related and rather uniform in markings. The chief points of likeness between the two genera lie in the semicircular depression across the prothorax and the appendiculate claws. In at least one species, *Phyllobrotica limbata* (Fabricius), the male antennal joints are thickened, but the middle tibiae show no emargination, and there is no thickening of the anterior tibiae in the male or short first

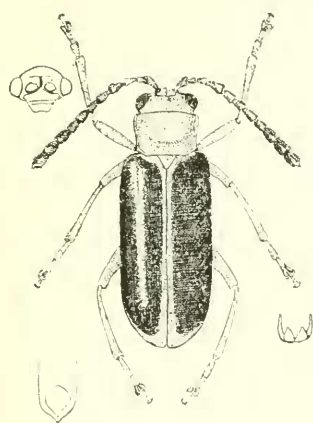
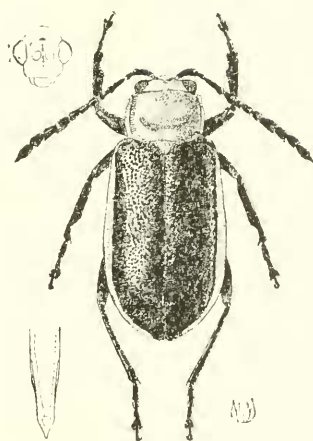
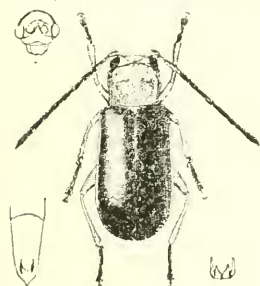
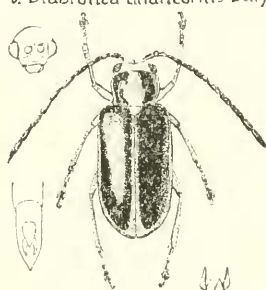
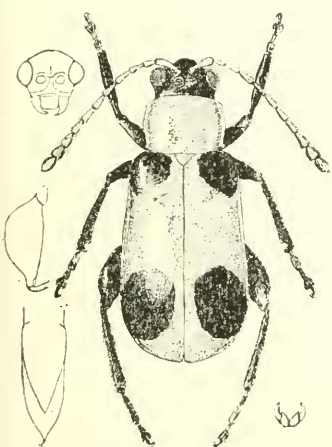
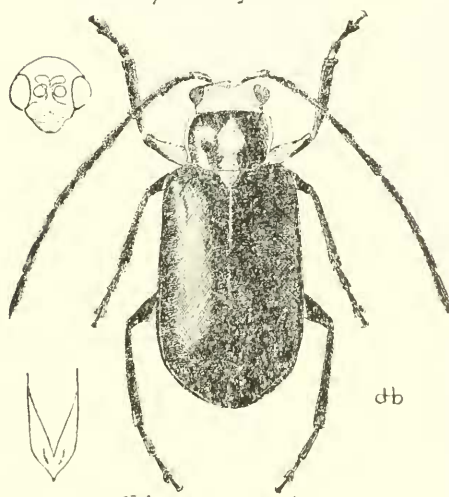
a. *Phyllobrotica limbata* (Fab.)b. *Diabrotica dilaticornis* Balyc. *Phyllecthrus texanus* Lec.d. *Phyllecthrus gentilis* Lec.e. *Leptonesiotes cyanospila* (Suffrian)f. *Phyllecthrus dorsalis* Oliv.

FIGURE 1.—a, *Phyllobrotica limbata* (Fabricius); b, *Diabrotica dilaticornis* Baly; c, *Phyllecthrus texanus* LeConte; d, *Phyllecthrus gentilis* LeConte; e, *Leptonesiotes cyanospila* (Suffrian); f, *Phyllecthrus dorsalis* (Olivier).

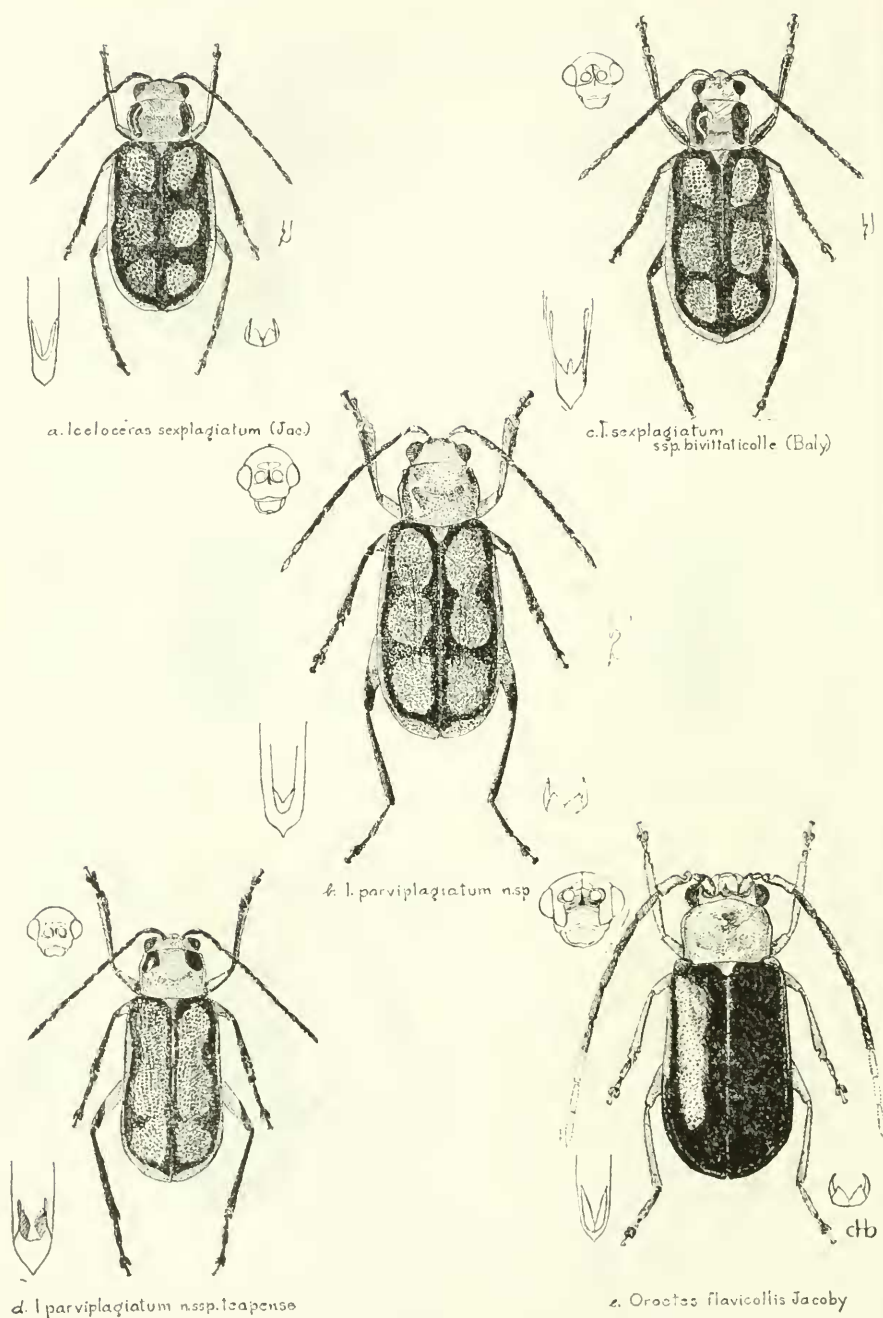


FIGURE 2.—a, *Iceloceras sexplagiatum* (Jacoby); b, *I. parviplagiatum*, new species; c, *I. sexplagiatum bivittaticolle* (Baly); d, *I. parviplagiatum teapense*, new subspecies; e, *Oroctes flavicollis* Jacoby.

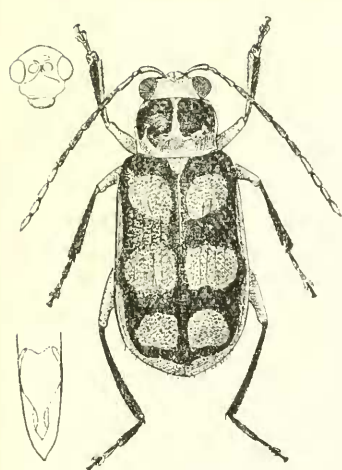
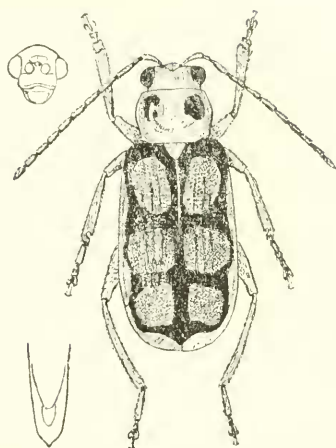
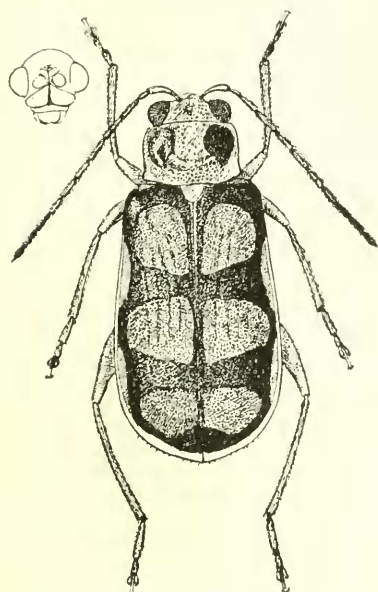
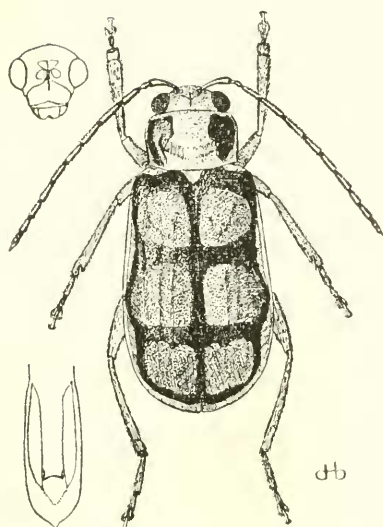
a. *Iceloceras latiplagiatum* n.sp.b. *I. verbesinae* n.sp.c. *I. l. maximum* n.sp.d. *I. l. flavipes* n.sp.

FIGURE 3.—a, *Iceloceras latiplagiatum*, new species; b, *I. verbesinae*, new species; c, *I. l. maximum*, new species; d, *I. l. flavipes*, new species.

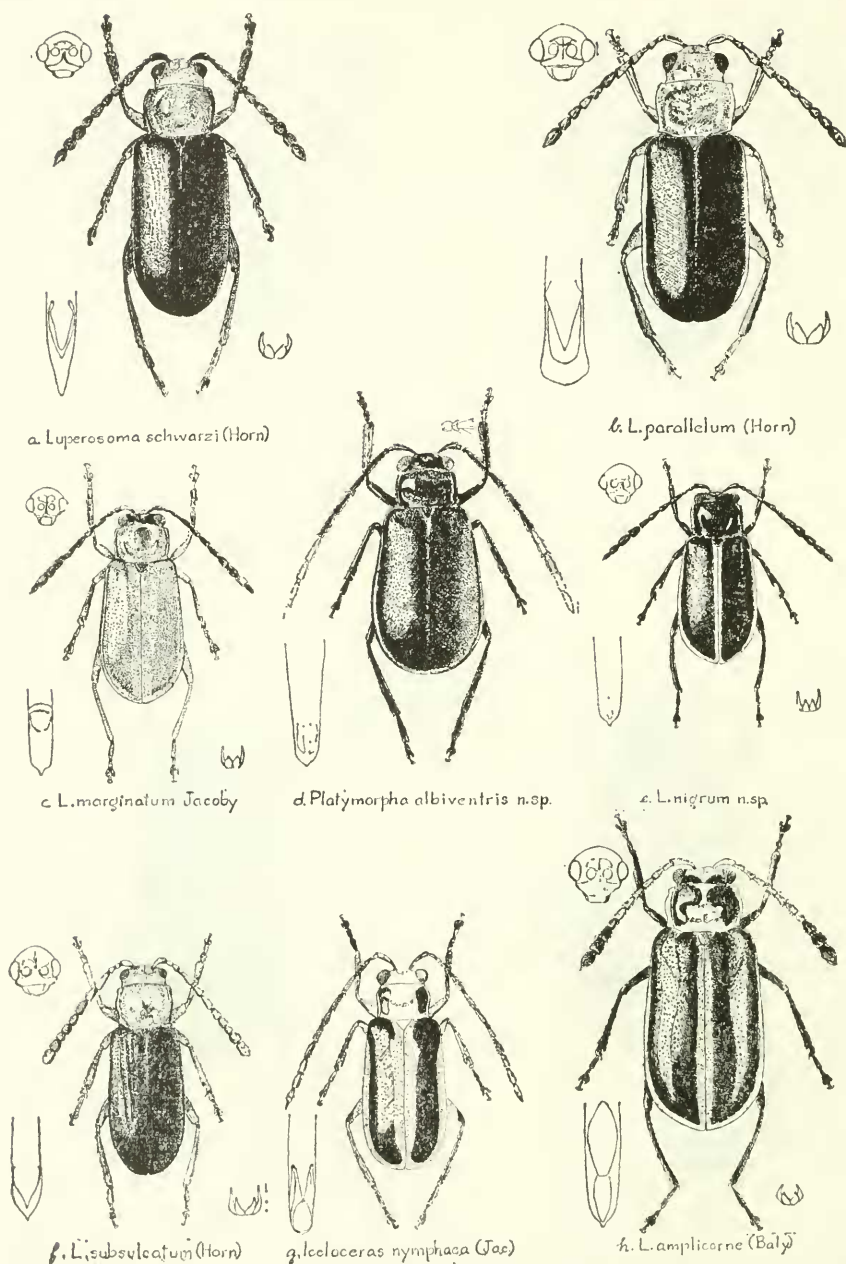


FIGURE 4.—a, *Luperosoma schwarzi* (Horn); b, *L. parallelum* (Horn); c, *L. marginatum* Jacoby; d, *Platymorpha albiventris*, new species; e, *Luperosoma nigrum*, new species; f, *L. subsulcatum* (Horn); g, *Iceloceras nymphaea* (Jacoby); h, *Luperosoma amplicornis* (Baly).

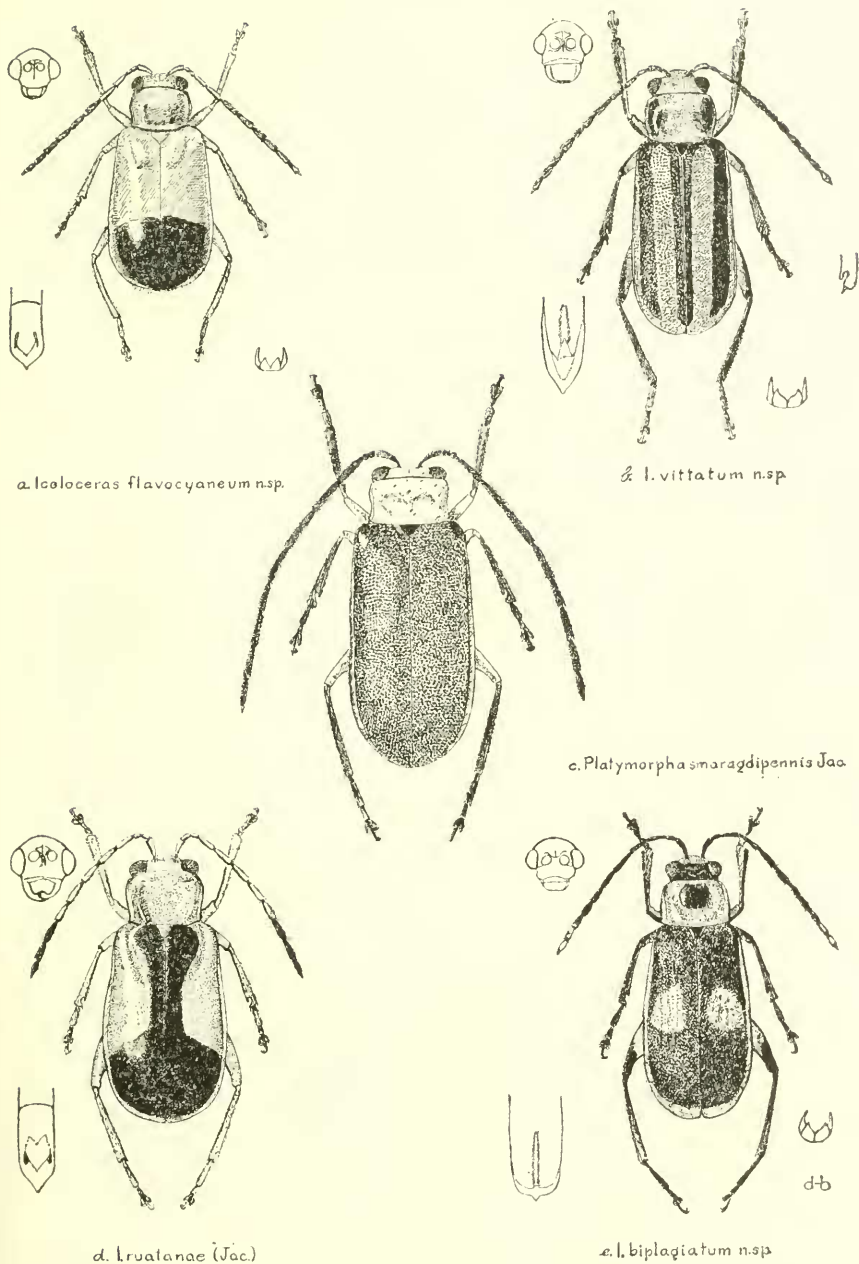


FIGURE 5.—a, *Iceloceras flavocyaneum*, new species; g, *I. vittatum*, new species; c, *Platymorpha smaragdipennis* Jacoby; d, *Iceloceras ruatanae* (Jacoby); e, *I. biplagiatum*, new species.

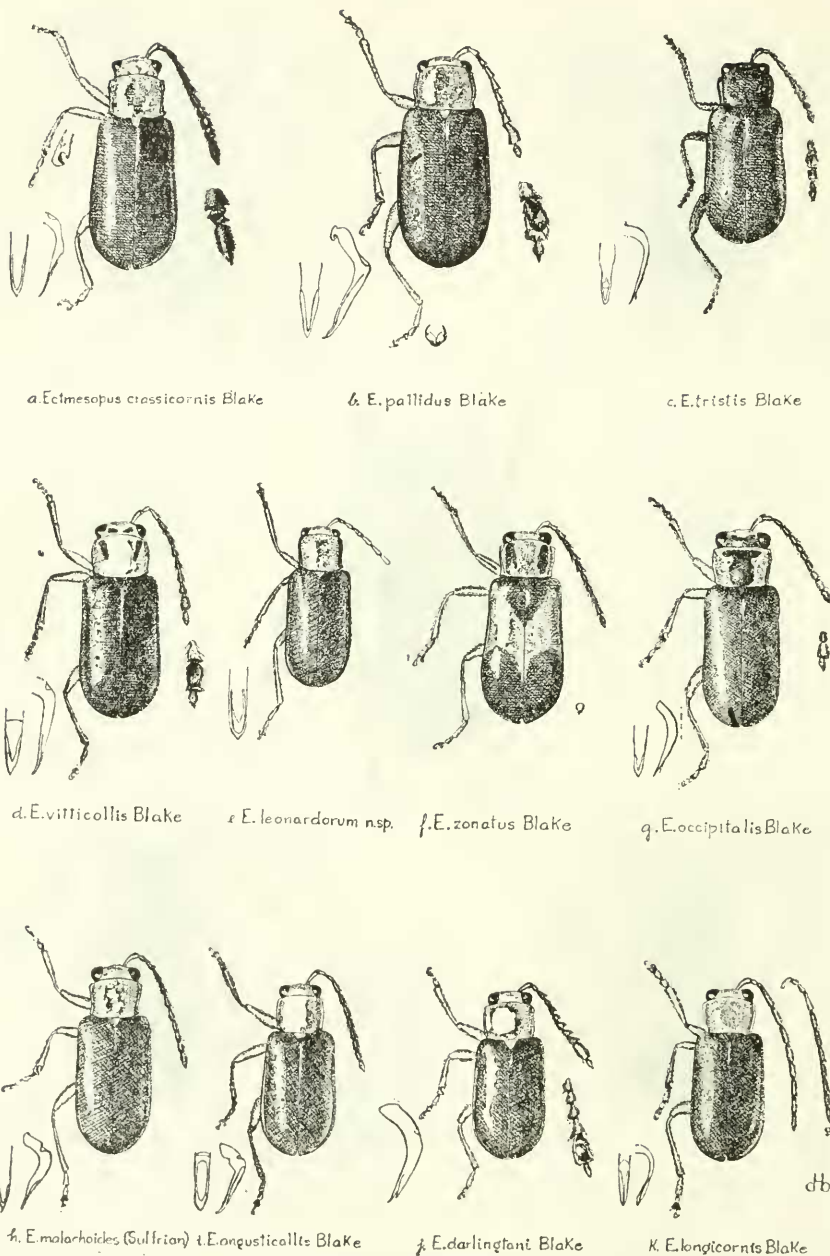


FIGURE 6.—a, *Ectmesopus crassicornis* Blake; b, *E. pallidus* Blake; c, *E. tristis* Blake; d, *E. vitticollis* Blake; e, *E. leonardorum*, new species; f, *E. zonatus* Blake; g, *E. occipitalis* Blake; h, *E. malachoides* (Suffrian); i, *E. angusticollis* Blake; j, *E. darlingtoni* Blake; k, *E. longicornis* Blake.

tarsal joint as in the group with the excised middle tibiae. In short, *Phyllobrotica* is not much more closely related to *Phyllecthrus* than is *Diabrotica*.

I wish to acknowledge my indebtedness to the U. S. National Museum and the Museum of Comparative Zoology for the material on which this study is based. Mr. G. E. Bryant of the British Museum (Natural History) has kindly made comparisons of types there and loaned me other specimens. Dr. Floyd Werner has sent me specimens from Arizona, and Mr. H. J. Grant has sent me notes on the Horn types. Dr. J. A. Wilcox has sent me a specimen with excised tibiae that he found in the Cornell University collection together with notes on other species, and called my attention to others in the Bowditch collection.

Key to genera of Galerucini here treated

1. Elytra without epipleura or the epipleura so narrow as to be inconspicuous, middle tibiae not excised in male **Phyllobrotica**
Elytra with epipleura. Middle tibiae in male excised. 2
2. Two anterior pairs of tibiae in male shallowly and broadly emarginate. Distal four joints of antennae in male greatly enlarged; claws bifid.
Diabrotica dilaticornis Baly
Middle tibiae alone deeply and narrowly excised. Claws appendiculate. . . 3
3. Antennae 10-jointed in male. **Phyllecthrus**
Antennae 11-jointed in male 4
4. Face excavated in male, third antennal joint much deformed, a nodule in middle of pronotum **Oroetes**
Face in male not excavated 5
5. Hind femora in male greatly swollen **Leptonesiotes**
Hind femora in male not swollen 6
6. Disk of pronotum not depressed **Ectmesopus**
Disk of pronotum with transverse semicircular depression 7
7. Antennae in male with the distal joints thickened **Luperosoma**
Antennae in male with the distal joints not thickened. 8
8. Third antennal joint in male very short, cup-shaped, truncate at apex.
Platymorpha
Third antennal joint in male usually much longer than second, not cup-shaped at all, or truncate at apex **Iceloceras**

Genus *Phyllecthrus* LeConte

Phyllecthrus LeConte, Proc. Acad. Nat. Sci. Philadelphia, p. 207, 1865.

The original generic description is as follows:

Body elongate, glabrous and nearly smooth above. Head transversely impressed between the eyes, and with a short median impressed line; acutely carinate between the antennae, which are very long, 2nd and 3rd joints together shorter than the 4th, nearly equal in size in the female, 2nd connate with the 3rd, and nearly obsolete in the male. Maxillary palpi stout, the last joint shorter than the preceding, slender, subsulcate, acute at tip. Prothorax quadrate, truncate at the apex with a lunate dorsal impression more or less distinct. Elytra with

the lateral margin distinct, epipleurae very narrow, not extending to the tip. Anterior coxae conical, contiguous; legs slender, tibiae not sulcate externally, middle tibiae of the male incised at the extremity on the inner margin; unguis with a large angular basal dilation. Abdomen with five ventral segments nearly equal in length and alike in both sexes.

I have adopted the generic name proposed in Dejean's Catalogue for *Gall. dorsalis* Oliv.

TYPE OF GENUS: *Phyllecthrus dorsalis* (Olivier).

Key to species of *Phyllecthrus*

1. Large, from 5 to 6.5 mm. in length *dorsalis* (Olivier)
 Small, from 3 to 4 mm. in length 2
2. Prothorax with wide dark lateral markings *gentilis* LeConte
 Prothorax entirely pale or with at most faint brown lateral spotting.
 Texas *texanus* LeConte

Phyllecthrus dorsalis (Olivier)

FIGURE 1,f

Galleruca dorsalis Olivier, Entomologie, vol. 6, p. 646, 1808.

Phyllecthris dorsalis Dejean, Catalogue des Coléoptères, ed. 3, p. 406, 1837.

Galleruca atriventris Say, partim, Journ. Acad. Nat. Sci. Philadelphia, vol. 3, pt. 2, p. 461, 1824.

Phyllecthrus dorsalis LeConte, Proc. Acad. Nat. Sci. Philadelphia, p. 207, 1865.

Between 5 and 6.5 mm. in length, elongate oblong oval, alutaceous but moderately shiny, finely punctate; head, prosternum, breast and femora yellowish brown, the last with a dark streak; prothorax with wide dark piceous lateral markings, the lateral margin and middle of disk yellow-brown; in some Kansas, Nebraska, and Missouri specimens the pronotum entirely pale; scutellum pale, elytra, tibiae and tarsi piceous. In male the antennae 10-jointed and middle tibiae notched.

Head with interocular space half width of head, smoothly rounded over occiput, finely and sparsely punctate, frontal tubercles well marked, a short bulging carina between antennal sockets, lower front moderately long, with scattered punctures. Antennae in male 10-jointed, 2d joint alone short, rest long, black and hairy and extending well below middle of elytra, the terminal joint often reddish brown. Antennae in female 11-jointed, 2d and 3d joints short, with the 3d a little longer, but together not so long as 4th, remainder a little shorter than 4th and slender, not so long or wide as in male and deep brown, not black. Prothorax wider than long with only slightly curved sides and a shallow depression in lower half, in some specimens faint; shiny, impunctate; dark piceous with pale lateral margin and a pale median area varying in size and shape from a central roundish spot to an elongate pale line; in some Nebraska, Kansas, and Missouri specimens the pronotum entirely pale. Scutellum pale. Elytra widened toward apex with well-marked humeri and short intrahumeral sulcus, dis-

tinctly alutaceous although shiny, and finely punctate, entirely dark piceous. Epipleura disappearing after middle. Body beneath pale with abdomen dark, femora pale except for dark streak and apex of middle and posterior legs, tibiae and tarsi piceous. Anterior coxal cavities open, middle tibiae of male notched near apex, tibiae with inconspicuous spine, claws appendiculate, front tibiae in male thickened and first tarsal joint swollen with tympanum-like underpart. Length 5–6.5 mm.; width 2.3–3 mm.

TYPE: Perhaps in Paris, described by Olivier from "Caroline."

DISTRIBUTION: *District of Columbia*: Washington, Hubbard and Schwarz; *Maryland*: Glen Echo, J. C. Bridwell; Plummers Island, W. L. McAtee, F. Knab; Great Falls, F. Knab. *Virginia*: Falls Church, Wm. Middleton; Rosslyn, F. H. Chittenden, F. Knab, Glencarlyn, F. Knab, J. C. Bridwell. *Pennsylvania*: Fall collection. *Illinois*: Southern Illinois; Monroe County, H. Soltau. *West Virginia*: White Sulphur Springs. *North Carolina*: Raleigh. *South Carolina*: Near Charleston (Olivier's type probably collected here by Bosc). *Georgia*: Fall collection. *Missouri*: Crevecoeur Lake, F. Knab. *Nebraska*: West Point; Kenosha, Elliott. *Kansas*: Topeka, Popenoe; Ashton; Onaga, F. F. Crevecoeur.

REMARKS: In Illinois, Kansas, Nebraska, and Missouri occur specimens with the pronotum entirely pale. However in a series of four specimens from Crevecoeur Lake, St. Louis County, Mo., all collected June 7, two specimens have the pronotum entirely pale, two are typically dark marked. In a series of seven from Onaga, Kansas, five have entirely pale pronotum, two are dark marked. Similarly, in a series from southern Illinois, while the majority are with an entirely pale pronotum, a few have typically dark-marked pronotum. Hence this pale coloration would seem merely a color phase.

Phyllethrus gentilis LeConte

FIGURE 1,d

Phyllethrus gentilis LeConte, Proc. Acad. Nat. Sci. Philadelphia, p. 208, 1865.

Phyllethrus nigripennis LeConte, partim, Trans. Amer. Ent. Soc., vol. 2, p. 58, 1868.

Phyllethrus gentilis var. *nigripennis*, Horn, Trans. Amer. Ent. Soc., vol. 20, p. 127, 1893.

About 3 mm. in length, elongate oblong oval, shining although finely alutaceous, pale yellow with dark antennae except the three basal joints, and with wide dark lateral markings on pronotum, the elytra dark except for the lateral margins and sutural edges; in some western specimens (*nigripennis*) the entire elytra dark; tip of abdomen dark; in male the antennae 10-jointed, and middle tibiae notched.

Head smooth and shiny over occiput with punctures above the distinctly marked frontal tubercles, interantennal area narrow and

flat, the labrum wide, lower front paler than upper. Antennae in male 10-jointed, basal three joints pale with dark edges, the remainder piceous, joints 3-5 long, rest gradually diminishing in length. In female, antennae 11-jointed, joints 2, 3 short, subequal, remainder longer and subequal. Prothorax a little wider than long with nearly straight sides, disk with a faint semicircular depression in basal half, sides widely piceous, margins, base and median space pale yellow, shiny, punctate on sides. Scutellum pale. Elytra with small humeri, elongate and narrow, alutaceous but shiny, piceous except for pale lateral and sutural margins; in some western specimens (*nigripennis*) elytra entirely dark. Body beneath, except tip of abdomen, and legs pale; middle tibiae of male notched near apex, and tibiae with fine spine, claws appendiculate. Length 3-4 mm., width 1.4-1.8 mm.

TYPE: A male in the LeConte collection, bearing a pale scarlet round locality label signifying the Southern States. There are two others with similarly colored labels, a male and female. The type of *Phyllethrus nigripennis* is a male from "Ks." Two others, bearing a similar locality label, are females (?).

DISTRIBUTION: *New York*: C. V. Riley. *Pennsylvania*: Alleghany, Wickham. *Maryland*: Beltsville, W. L. McAtee; Plummers Island, W. L. McAtee; Chesapeake Beach, H. S. Barber. *District of Columbia*: Washington, Hubbard and Schwarz on *Pinus virginiana*, W. L. McAtee; Rock Creek Park, Heidemann. *Virginia*: Glencarlyn, F. Knab; Kanawha, on *Robinia*, A. D. Hopkins. *Ohio*: Cincinnati, H. Soltau. *Illinois*: Heyworth, Wolcott; Starved Rock State Park, F. G. Werner. *Iowa*: Iowa City, Wickham. *Missouri*: St. Louis County, F. Knab.—Distribution of *P. nigripennis*: *Nebraska*: Fillmore. *Iowa*: Lake Okoboji, Buchanan. *Kansas*: Onaga, F. F. Crevecoeur; Wickham; Riley County, F. Marlatt.

REMARKS: Horn reduced *P. nigripennis* LeConte to a variety of *P. gentilis*. Comparison of the two types in the LeConte collection shows that the two are very much alike except that *nigripennis* is darker in coloring, having the elytra entirely dark, and the abdomen dark, the breast not so dark, the epipleura pale. The aedeagus of a dissected specimen from Kansas appears like that of *gentilis*. This darker coloring of the western specimens may be analogous to that of western specimens of *dorsalis*, Say's *atriventris*. Horn gives a record of *P. gentilis* being taken on *Robinia pseudacacia* by Dr. Hamilton.

Phyllethrus texanus LeConte

FIGURE 1,c

Phyllethrus texanus LeConte, Trans. Amer. Ent. Soc., vol. 12, p. 28, 1884.

Phyllethrus gentilis var. *texanus* Horn, Trans. Amer. Ent. Soc., vol. 20, p. 58, 1893.

About 3 mm. in length, elongate oblong, shining although the elytra are alutaceous, finely punctate, prothorax with a semicircular depres-

sion in basal half, in the male the antennae 10-jointed and the middle tibiae notched near apex; antennae dark, head, prothorax, undersurface, legs (except tarsi), and margin of elytra pale yellow-brown, elytra otherwise piceous.

Head entirely pale, smoothly rounded over occiput down to the frontal tubercles with an area over tubercles on each side of distinct, closely placed punctures, tubercles not swollen but distinctly marked, interantennal area narrow, not much produced, labrum wide. Antennae dark and in male 10-jointed, joints 3-10 long and subequal; antennae in female 11-jointed, the 3d joint short and equal to 2d in length. Prothorax almost as long as wide with sides only slightly curved, a semicircular depression in lower half, entirely pale yellow-brown except in two or three specimens a faint brownish spotting on each side; shining. Scutellum yellow-brown. Elytra smoothly rounded, without depression, shining although alutaceous and with fine, not dense punctures becoming invisible towards apex; piceous with pale yellow-brown explanate margin from apical curve on becoming piceous. Epipleura indistinct after middle. Body beneath pale yellow-brown, lightly pubescent; legs pale with tarsi deeper in color; middle tibiae of male notched near apex; tibiae with fine spine at apex; claws appendiculate. Length 3.3 mm.; width 0.9 mm.

TYPE: Female, in the LeConte collection, and four paratypes (two males, two females) collected by Belfrage in Texas. In the collection of the U. S. National Museum are 30 more specimens labelled "Texas, Belfrage, Eutopotypes" by H. S. Barber, which are evidently from the same series as the LeConte specimens.

REMARKS: This is one of the species described by LeConte and published after his death by Horn who later synonymized it with *P. gentilis*, as a color form like *P. nigripennis*. It is probably a distinct species as the aedeagus is somewhat different and the prothorax has no distinct dark markings as in *gentilis*, and the elytral markings are unlike either *gentilis* or *nigripennis*. I have seen no other specimens besides those taken by Belfrage.

Genus *Oroetes* Jacoby

Oroetes Jacoby, Biologia Centrali-Americana, Coleopt., vol. 6, pt. 1, p. 600, 1888.

The original generic description is as follows:

Head broad, the penultimate joint of the palpi incrassate; antennae filiform, deformed in the male, the second and third joints short; thorax transversely subquadrate, the surface deeply depressed; elytra irregularly punctured, their epipleurae obsolete below the middle; the posterior tibiae with a short spine (this is present on all tibiae); the intermediate tibiae notched near the apex in the male; the first joint of the posterior tarsi rather longer than the following three joints united; claws appendiculate; the anterior coxal cavities open.

This new genus, which should be placed near *Luperus*, is separated from any of the genera composing this section by the broad head and the depressed thorax,

and by the elytral epipleurae being obsolete below the middle; the male insect is further distinguished by the structure of the antennae, and by the intermediate tibiae being notched near the apex.

TYPE OF GENUS: *Oroetes flavicollis* Jacoby.

Oroetes flavicollis Jacoby

FIGURE 2,*e*

Oroetes flavicollis Jacoby, Biologia Centrali-Americana, Coleopt., vol. 6, pt. 1, p. 600, 1888.

About 5 mm. in length, oblong oval, shining, the elytra finely punctate; pale reddish yellow, antennae with basal joints pale, rest piceous, elytra a violaceous blue except for a pale margin in basal half. In male the 3d antennal joint long and with a rounded excision, 4th joint flattened and curved, in female the 3d joint short; in male the face excavated and a spine in the middle of the lower front, the pronotum with a median tubercle; middle tibiae notched near apex.

Head in female smoothly rounded over occiput and down front, with little sign of frontal tubercles or interantennal carina, lower front flat, interocular space more than half its width; in male, the lower front excavated between antennae and below this a transverse ridge with a median spine, two flat side pieces extending from below antennal sockets to labrum. Antennae nearly as long as beetle, in female filiform, slender, pubescent, first two joints pale yellow, 3d, also pale, and 4th short and subequal, rest much longer and dark. In male the first four basal joints pale, the first joint swollen, 2d short, 3d long and flattened below and broadened with a cut out excision near the base, 4th joint flattened below and a little swollen and long, remainder long and hairy and dark. Prothorax almost rectangular with sides only slightly curved, in male the anterior margin roundly produced in middle over occiput of head, in female straight across; in male, a median tubercle on anterior half with a fovea in front of it; in both sexes a semilunate transverse depression in basal half. Surface shining, impunctate, pale reddish yellow. Scutellum pale. Elytra shining violaceous with the anterior explanate margin pale, distinctly and moderately densely punctate. Epipleura becoming indistinct before apical curve. Body beneath and legs entirely pale, anterior coxal cavities open, tibiae with fine spine, middle tibiae of male notched near apex, first tarsal joint of anterior legs in male slender and cylindrical with tympanum-like covering underneath; in posterior legs first tarsal joint long, claws appendiculate. Length 5-5.4 mm.; width 2.4 mm.

TYPE: Probably in British Museum (Natural History), described from specimens from Chontales, Nicaragua, and Bugaba and David, Panama.

OTHER LOCALITIES: Escocia (Costa Rica?), Nevermann; Piedras Negras, Costa Rica, Schild and Burgdorf.

REMARKS: The extraordinary development of the antennae, head, and pronotum in the male bewilders a taxonomist trying to place this beetle in a genus. The excavation of the head and abnormal antennae are suggestive of *Cerotoma*, but the depressed pronotum, the notched middle tibiae in the male, and the *Luperus*-like shape place it near *Phyllecthrus*. It deserves generic standing. Jacoby describes the Nicaragua and Panama specimens as having four pale basal antennal joints in the male. In the specimens I have examined from Costa Rica, only three basal joints are pale in the male and only the first two in the female. Otherwise the description fits.

Leptonesiotes, new genus

Elongate oblong oval, glabrous and without conspicuous punctation, the head with well-marked frontal tubercles, with a short earina between the antennal sockets, jaws large; antennae 11-jointed, not extending much below the middle of the elytra, in the male, joints 10 and 11 enlarged, joint 3 barely twice as long as joint 2 and a little shorter than joint 4, joints 3–9 subequal. Prothorax a little wider than long with slightly curved sides, somewhat narrowed towards base, disk convex, without depressions. Elytra a little broader behind, the humeri well developed with an intrahumeral sulcus. Epipleura extending to about the middle of the elytra; anterior coxal cavities open; in the male a thickening of the front tibia, the first joint of the front tarsi short and thick with the undersurface having a flat tympanum-like appearance; middle tibiae with a notch on the inner margin near apex; hind femora much enlarged but narrowed at apex, no apical spine discernible, posterior first tarsal joint longer than the rest together; claws appendiculate.

TYPE OF GENUS: *Diabrotica cyanospila* Suffrian.

REMARKS: The name is derived from the Greek "leptos," delicate, and "nesiotes," islander.

Leptonesiotes cyanospila (Suffrian)

FIGURE 1,c

Diabrotica cyanospila Suffrian, Arch. Naturg., vol. 33, No. 3, p. 313, 1867.

About 5.5 mm. in length, elongate oblong oval, shining, the elytra conspicuously punctate, yellow (? reddish in life) with dark head and dark humeral and apical spot on each elytron shining with a purplish or violaceous lustre, last two abdominal segments deep violaceous, the femora and tibiae also dark, tarsi reddish brown, antennae pale, and in the male with the two distal joints enlarged, in the male also the middle tibiae notched near the apex.

Head smooth and shining, with a shallow depression over the well-marked frontal tubercles, space between antennal sockets slightly produced in a short carina down front; labrum wide, jaws large, lower front deep reddish brown, upper part of head dark with a violaceous lustre. Antennae entirely pale, not extending to middle of elytra, 3d joint shorter than 4th, joints 3-9 subequal, the two distal joints in the male enlarged and somewhat distorted. Prothorax a little wider than long, with slightly curved sides and oblique basal angles, moderately convex, the disk without depressions, shiny yellowish. Scutellum pale. Elytra shiny, pale with dark violaceous spot covering humerus and extending almost to scutellum, another larger dark spot below middle extending from the margin nearly to the suture, but not reaching apex. Body beneath pale except the last two ventral segments, which are deep violaceous. Femora and tibiae dark, the tarsi reddish brown. Middle tibiae of male with notch near apex, no spurs discernible on tibiae. Claws appendiculate. Length 5.5 mm.; width 2.4 mm.

TYPE: Perhaps in Gundlach collection in Havana, Cuba. Collected in Cuba.

OTHER LOCALITIES: *Cuba*: Havana, Baker; Taco Taco, S. C. Bruner, A. Acuña, C. H. Ballou.

REMARKS: I know of no other galerucid beetle that has the enlarged hind femora, notched middle tibiae, and antennal enlargement in the male. *Leptoxena eximia* Baly from the Andaman Islands, also a galerucid beetle, has similar enlargement of the hind femora and dilated antennal joints in the three distal joints, but not the notched middle tibia. It is an entirely different looking beetle and in no way related to the present one.

Iceloceras, new genus

Elongate oblong oval, glabrous, confusedly punctate, antennae filiform, not enlarged in male, the 3d joint sometimes subequal to 2d, sometimes twice as long; prothorax subquadrate, wider than long, with slightly curved sides; a semicircular depression in lower half. Elytra little widened apically, epipleura vanishing at apical curve; anterior coxal cavities open; anterior front tibiae in male swollen and first tarsal joint short and wide with undersurface having tympanum-like covering; middle tibiae of male notched near apex; middle and hind tibiae with small spur; first tarsal joint of posterior legs long, nearly equalling the rest of joints together; claws appendiculate.

TYPE OF GENUS: *Diabrotica sexplagiata* Jacoby.

The type of the genus *Neobrotica*, as has been so designated by Weise, is *N. variabilis* Jacoby. The several species that have been confused under the name of *N. sexplagiata* (Jacoby) bear little

resemblance to *N. variabilis*. They are differently shaped, being oblong instead of widened at the apical end. They have longer heads and smaller eyes. The sex character of the excised middle tibiae in the male, found in them, is not found in *variabilis*. In short, they fit better into the group with notched middle tibiae than into that miscellany of species called *Neobrotica*, although there is no antennal difference between the sexes. Besides *serplagiata* are other species, one of which has been also described under *Neobrotica*, *N. ruatanae* Jacoby from Honduras. There is another undescribed species from Mexico closely related to *ruatanae*. In both of these the middle tibiae of the male are notched and the antennae not enlarged in the male. But they differ from *serplagiata* in the length of the 3d antennal joint, which is short and subequal to the 2d, whereas in *serplagiata* it is long. In this regard these two form a connecting link with the genus *Luperosoma*. Besides these is another undescribed species from South America that is more closely related to *serplagiata*. All of these species are a little different from the other groups having for the male character the notched middle tibiae in that they do not have any enlarged or otherwise deformed antennal joints in the male; consequently, the genus *Iceloceras*, is here erected for them.

The name is from the Greek "ikelos," like, and "keras," horn.

Key to species of *Iceloceras*

1. Third antennal joint short 2
 Third antennal joint fully twice as long as second 3
2. Elytra with a wide dark sutural marking curving down and widening to cover
 apex of elytra except margin **ruatanae** (Jacoby)
 Elytra with only apical third dark **flavocyaneum**, new species
3. Elytra vittate 4
 Elytra not vittate 5
4. Elytra with a sutural and a lateral vitta, not joined at apex.
 **vittatum**, new species
 Elytra with a wide median dark vitta **nymphaea** (Jacoby)
5. Elytra piceous with a single pale spot in the middle of each elytron.
 **biplagiatum**, new species
 Elytra piceous with three pale spots on each, sometimes confluent 6
6. Legs entirely pale 7
 Tibiae, tarsi and usually femora at apex dark 9
7. Orange-brown with dark brown or piceous markings. South America.
 **maximum**, new species
 Pale yellow with piceous markings 8
8. Pronotum nearly impunctate, a dark spot on either side not extending below
 middle. Costa Rica **verbessinae**, new species
 Pronotum distinctly and rather densely punctate, the dark spot on either
 side extending nearly entire length. Panama . . . **flavipes**, new species
9. Femora entirely pale, tibiae and tarsi dark, the large dark spot on each side
 of pronotum extending nearly to middle. Panama.
 **latiplagiatum**, new species
 Femora with a dark streak at apex, tibiae and tarsi dark 10

10. Pronotum with vittate piceous mark on each side. Panama, South America.
sexplagiatum (Jacoby)

Pronotum with a spot on each side 11

11. Large, 5-6 mm., an inconspicuous dark spot on each side of pronotum, sometimes lacking. Guatemala, Nicaragua, Honduras, Costa Rica.

parviplagiatum, new species

Smaller, 4-5 mm., a dark spot on anterior sides of pronotum usually conspicuous. Mexico **parviplagiatum teapense**, new subspecies

Iceloceras sexplagiatum (Jacoby)

FIGURE 2,a

Diabrotica sexplagiata Jacoby, Proc. Zool. Soc. London (1877), p. 151, 1878; Biologia Centrali-Americana, Coleopt., vol. 6, p. 527, 1887.

Neobrotica sexplagiata (Jacoby), Gahan, Trans. Ent. Soc. London (1891), p. 524, 1891.—Jacoby, Biologia Centrali-Americana, Coleopt., vol. 6, Suppl., p. 331, 1892.

Between 3.5 and 5 mm. in length, elongate oblong oval, the elytra densely and moderately coarsely punctate, shining, pale yellow with brown to piceous antennae and legs with a dark streak on the upper femora, dark tibiae and tarsi, and on the pronotum a dark vitta on each side, and the elytra with six yellow spots and a pale margin, the rest piceous black; middle tibiae of the male with a small notch near apex.

Head with interocular space a little more than half width of head; deep orange on occiput, pale yellow on lower front, smoothly rounded with fine punctures on occiput and a fine median line extending down lower front between frontal tubercles and a thin carina down lower front. Antennae entirely dark, 3d and 5th joints a little shorter than 4th. Prothorax about a third wider than long, sides slightly curved and a semicircular depression on lower half of disk; shining although finely alutaceous and finely punctate; pale yellow with a lateral piceous vitta on each side extending from anterior margin nearly to basal margin. Scutellum pale. Elytra dark piceous with three pale yellow spots on each and a pale margin; surface densely and coarsely punctate, shining. Epipleura extending to apical curve; in the female the last abdominal segment dorsally conspicuously black-edged, and the one before with a dark spot on each side. Body beneath entirely pale, with pale pubescence; femora pale with a dark streak above, posterior tibiae and tarsi dark, the notching on the middle tibiae of the male very small. Length 3.5-5 mm.; width 1.5-2 mm.

TYPE: Probably in the British Museum (Natural History).

DISTRIBUTION: *Panama*: Bella Vista, Nathan Banks, Aug. 8, 1924; Paraíso, C. Z., E. A. Schwarz, A. H. Jennings; Porto Bello, August Busck; Summit, N. L. H. Krauss; Miraflores, A. H. Jennings; Tobago Island, H. F. Dietz; Pueblo Nuevo, Papaya plantation, H. Morrison;

El Cermino, J. Zetek; Pedro Miguel, N. L. H. Krauss; Volcán de Chiriquí, 2500–4000 ft., Champion.

REMARKS: In 1878 Jacoby described as *Diabrotica sexplagiata* a beetle whose habitat he gave as Peru and Panama. In 1887 he stated that the Peruvian specimens were a different species from the Panama ones and used the name *sexplagiata* for the Panama species. Gahan in 1891 called attention to the fact that the claws of *D. sexplagiata* were appendiculate and referred the species to the genus *Neobrotica*. This emendation Jacoby (1892) accepted in his Supplement to the Biologia. Meanwhile, Baly had described as *D. bivittaticollis* a similar form from Magdalena River, Colombia, which Jacoby (1892) referred to synonymy under his Panama species. In the material examined from Panama that I have tried to match with Jacoby's description of *sexplagiata*, I have found four distinct species. There are many of Jacoby's specimens in the Bowditch collection of the Museum of Comparative Zoology, and Mr. G. E. Bryant has kindly sent me other material from the British Museum, but in all this I have not found specimens that Jacoby originally had from Panama for his first description. In the Bowditch collection are three specimens from Volcán de Chiriquí, Panama, collected later by Champion, and the specimens from the British Museum are of this same series collected by Champion. Possibly Jacoby had earlier specimens collected by Salvin. But these Champion specimens match Jacoby's description. However, the two figures given later for this species in the Biologia Centrali-Americana Supplement are of beetles collected elsewhere, the first from Belize, British Honduras, with an entirely pale pronotum (in the original description the pronotum is given as having a lateral piceous vitta on each side extending from the anterior margin nearly to the basal margin), and the second from Tapachula, Chiapas, Mexico, which Mr. Bryant has sent me, with sutural and lateral elytral vittae, distinctly different from his description of the three large yellow spots on each elytron. It seems quite evident that Jacoby was confused by the wealth of his material, all of which he tried to include in his later account of *sexplagiata* in the Biologia. In reality there are a number of closely related species having the 6-spotted elytra, but differing in many other less obvious ways. These range from Mexico to Bolivia and Brazil.

In my interpretation of *sexplagiatum* I am considering these specimens from the Volcán de Chiriquí as typical as they correspond with Jacoby's original description. In Central America this species seems not to occur north of Panama. In South America, however, is found a beetle very similar to the Panama species in markings. Baly (1886a) described specimens from Magdalena River, Colombia, as *Diabrotica bivittaticollis*. Mr. Bryant has sent me a paratype of Baly's species

which closely resembles the Volcán de Chiriquí specimens and may be identical with them. The Baly specimen unfortunately is a female. The only other specimens that I have seen from that region are two females collected by P. J. Darlington at Aracataca, Magdalena Province.

Specimens closely resembling these have been collected in Venezuela, Trinidad, Brazil, Peru, and Bolivia. On the whole, these South American specimens may be a little longer, the pale spots on the elytra larger, and the last three antennal joints, instead of being piceous, are generally pale. Because of these and some other minor differences, including the aedeagus, I am resurrecting Baly's name *bivittaticollis* for a South American subspecies. Future collections and study will contribute more knowledge to the subject.

Iceloceras sexplagiatum bivittaticole (Baly)

FIGURE 2,c

Diabrotica bivittaticollis Baly, Journ. Linn. Soc. Zool., vol. 19, p. 257, April 1885.
Neobrotica sexplagiata (Jacoby), Jacoby, in part, Biologia Centrali-Americana, Coleopt., vol. 6, Suppl., p. 331, 1892.

The only differences between this and typical *Iceloceras sexplagiatum* are in the somewhat larger size (length 4–5.5 mm., width 2–2.5 mm.), the larger pale spots on the elytra, and the wider and longer black vittae on the pronotum. The last three joints of the antennae, instead of being black, are usually pale brown. The aedeagus (at least of Tingo Maria specimen) is slightly different. The tip of the abdomen dorsally is darker. The small notch of the middle tibiae of the male is like that in typical *I. sexplagiatum*, these two forms differing from all the rest by having a much tinier notching.

TYPE: In British Museum (Natural History), collected on the Magdalena River, Colombia.

DISTRIBUTION: *Colombia*: Aracataca, Magdalena Province, P. J. Darlington; Río Dagua, W. Rosenberg. *Peru*: Tingo María, Dieguez; Río Charapa, C. H. T. Townsend. *Venezuela*: Caracas, Panduze; San Esteban, E. Simon, 1st Jacoby collection (? Colombia or Venezuela). *Trinidad*: G. E. Bryant. *Brazil*: Bahia, P. G. Russell; Ceara; Independencia, Parahyba, W. M. Mann and Heath; Jataky, Goiaz Province; Bonito, Pernambuco Province, Dr. Brauns, 2d Jacoby collection; Santa Catharina. *Bolivia*: Rurrenabaque, Río Beni, W. M. Mann; Guanay, Mapire River, 1500 ft., Stuart.

Iceloceras maximum, new species

FIGURE 3,c

Approximately 7.5 mm. in length, elongate oblong oval, alutaceous, only faintly shining, head and prothorax densely and finely punctate, the elytra more coarsely and densely punctate; deep yellowish or

orange-brown, the prothorax with a broad piceous spot on each side coming about half way down, elytra piceous with six pale yellow-brown spots and pale margin, legs and undersurface entirely pale and antennae pale with the three distal joints a bit deeper brown in color.

Head with interocular space about half width of head, alutaceous and finely punctate, a well-marked narrow carina running from between antennal sockets down lower front. Antennae pale with the last three joints brownish. Prothorax approximately one-third wider than long with somewhat rounded sides, disk with a semicircular transverse depression; alutaceous and distinctly and rather densely punctate; yellow-brown with a broad piceous spot on each side extending just below the middle of pronotum. Scutellum pale. Elytra distinctly alutaceous, and densely and shallowly punctate with a tendency to ridging, producing a semicostate appearance; three large, dull, yellow-brown spots and pale margin on piceous background. Epipleura extending to apical curve; legs and undersurface and last two abdominal segments dorsally entirely pale. Length 7-7.5 mm.; width 3.5-3.7 mm.

TYPE: Female, USNM 63355, Territorio Federal Amazonas Randal Salas, Aug. 15, 1951, Exp[edicion] F[ran]co Vene[zolana], Alto Orinoco.

OTHER LOCALITIES: One female from King Frederick William Falls, Couratryne River, Dutch Guiana, J. G. Myers; one female from "Culebra, N. Duida Territory, Amazons, 1950, J. Maldonado Capriles"; one female from Bogotá, Colombia.

REMARKS: This is the largest of the *saxplagiatus* group of beetles, and, unlike the rest, is dull deep orange-brown in its pale markings instead of pale yellow. Unfortunately, no male specimen has been collected.

Iceloceras flavipes, new species

FIGURE 3,d

From 5-6.5 mm. in length, elongate oblong, somewhat shiny although distinctly alutaceous; prothorax rather densely punctate, elytra densely punctate with semicostate ridging; head, antennae, legs, and body beneath entirely pale, prothorax with wide piceous spot on each side wider anteriorly and extending nearly entire length; elytra piceous with three large pale spots on each elytron, the margin pale.

Head with interocular space about half width of head, shining, pale yellow, the occiput finely punctate, frontal tubercles distinctly marked, a narrow carina running down lower front from between antennal sockets. Antennae entirely pale, 3d joint shorter than 4th. Prothorax about one-third wider than long, with slightly rounded sides and semicircular transverse depression; surface shiny, more or

less alutaceous, and with moderately coarse punctures. Scutellum pale. Elytra faintly alutaceous and densely and coarsely punctate, with irregular ridges giving it a semicostate appearance; piceous with three large pale yellow spots on each elytron, margin pale. Epipleura vanishing at apical curve; last two abdominal segments pale above. Body beneath and legs pale. Length 5.2–6.5 mm.; width 2.4–3.2 mm.

TYPE: Male and three paratypes (2 females, 1 male), USNM 63356 from Colima, Panama, collected by August Busck.

OTHER LOCALITIES: *Panama*: Pedro Miguel, A. H. Jennings; Barro Colorado, Canal Zone, May 1929, P. J. Darlington; Ft. Davis, Canal Zone, Nathan Banks, July 5, 1924. *Colombia*: Río Frío, Magdalena Province, P. J. Darlington.

REMARKS: Of the Central American species having pale legs and antennae, this one is the largest of the *sexplagiatus* group, and is characterized by having longer spots on the side of the pronotum extending nearly to the base. In addition, the pronotum is distinctly punctate. It approaches in size the South American species, *I. maximum*, but the coloring is different, and the mark on the pronotum is longer. In the Bowditch collection at the Museum of Comparative Zoology is a specimen from the first Jacoby collection with the label Peru and a name label "*D. bivittaticollis* Baly" (in Jacoby's handwriting?). The specimen is similar to the above specimens from Panama in its markings. It is a male but the abdomen is shrivelled and the specimen so old that I have not ventured to dissect it. Possibly this is the specimen from which in part Jacoby originally drew up his first description of *Diabrotica sexplagiata*, since the locality is Peru. Until further specimens from Peru can be obtained, I believe this specimen should be considered the same as *Iceloceras flavipes*.

Iceloceras verbesinae, new species

FIGURE 3,b

Between 5 and 6 mm. in length, elongate oblong oval, shining, the elytra coarsely punctate and semicostate appearing; head, prothorax, body beneath, antennae, and legs pale yellow, the prothorax with a large piceous spot on each side in anterior half, elytra piceous with six pale yellow spots and margin pale.

Head with interocular space approximately half width of head, pale yellow, shining, a few fine punctures over occiput, tubercles well marked, carina between antennal sockets narrow and short, not extending down front. Antennae entirely pale, 3d joint shorter than 4th. Prothorax about one-third wider than long with slightly curved sides, a semicircular depression across disk, nearly impunctate, shining, pale yellow with a large piceous spot on each side in anterior half. Scutellum pale. Elytra shining, sometimes faintly alutaceous,

densely and coarsely punctate, the punctures forming irregular ridges, giving the elytra a semicostate appearance; piceous with three pale yellow spots on each elytron, the margin pale. Epipleura extending to apical curve, last two abdominal segments entirely pale above, legs and undersurface entirely pale. Length 4.8–6 mm.; width 2–2.5 mm.

TYPE: Male, USNM 63357, and three paratypes, from Tucurrique, Costa Rica, Schild and Burgdorf; two paratypes in Museum of Comparative Zoology (No. 29612).

OTHER LOCALITIES: *Costa Rica*: Juan Vincas, collected by C. H. Ballou on *Verbesina turbacensis* H. B. K.; Turrialba, Schild and Burgdorf, 2d Jacoby collection; Port Limón, P. J. Darlington; San José, Schild and Burgdorf.

REMARKS: In this species with entirely pale legs and antennae, the pronotal spots are near the anterior margin of the prothorax and extend barely to the middle of the pronotum.

Iceloceras latiplagiatum, new species

FIGURE 3,a

About 5.5 mm. in length, elongate oblong oval, shining although faintly alutaceous; head and prothorax finely and elytra coarsely punctate; pale yellow, the antennae brown with the four distal joints pale, pronotum with a large piceous spot on each side in anterior half nearly meeting in center; elytra dark with six pale yellow spots, margin pale; all femora pale, middle and posterior tibiae dark, anterior tibiae dark on one side; last two segments of abdomen entirely pale on dorsal side.

Head with interocular space half its width; smooth and shiny with a few fine punctures on occiput, frontal tubercles distinctly marked, a short carina between antennal sockets. Antennae brown with the four distal joints pale. Prothorax a little wider than long, with slightly curved sides, disk with deep semicircular depression; shiny although alutaceous, finely punctate; pale yellow with a broad piceous mark on each side of anterior half of pronotum, in two of the four specimens nearly meeting in the middle. Scutellum pale. Elytra piceous with three large pale yellow spots on each elytron, the margin pale, densely punctate, faintly costate. Epipleura vanishing at apical curve; last two segments of abdomen dorsally entirely pale. Body beneath entirely pale, anterior tibiae dark on one side, middle and posterior tibiae and all tarsi dark. Length 4.8–5.5 mm.; width 2.2–2.6 mm.

TYPE: Male and two paratypes, USNM 63358, collected at Porto Bello, Panama, Mar. 3, 1911, by August Busck. One paratype in Museum of Comparative Zoology (No. 29613).

REMARKS: This species is characterized by having bicolored antennae, entirely pale femora, dark tibiae and tarsi, and very large dark spots on the anterior half of the pronotum.

Iceloceras parviplagiatum, new species

FIGURE 2,b

Between 5 and 6 mm. in length, elongate oblong oval, somewhat shiny, although finely alutaceous, the head and pronotum finely and the elytra densely and coarsely punctate, pale yellow-brown, the spots and margin of piceous elytra pale yellow, the pronotum with a very small dark spot near lateral margin anteriorly, sometimes lacking; antennae dark with the basal and three distal joints tending to be paler, tibiae and tarsi more or less dark, and femora with a dark streak.

Head with interocular space more than half width of head, pale yellow in lower front, deeper in color on occiput, the occiput finely punctate, frontal tubercles somewhat swollen, a short carina not extending more than half-way down front. Antennae brownish or piceous with the three basal and three terminal joints tending to be paler. Prothorax approximately one-third wider than long, with slightly curved sides and a transverse semicircular depression; surface alutaceous and finely punctate, bright yellow with a small lateral piceous spot near anterior margin, not extending beyond the middle, sometimes very faint or even lacking. Scutellum pale. Elytra alutaceous, densely and coarsely punctate, the punctures often confluent and with semicostate ridging; piceous with three large pale spots on each elytron, the upper two sometimes confluent, the margin pale. Epipleura vanishing at apical curve, last ventral segment usually entirely dark on dorsal side. Body beneath pale, legs with anterior tibiae streaked with dark on upper surface, femora pale with a dark streak, middle and posterior tibiae and tarsi dark. Length 5-6 mm.; width 2-2.5 mm.

TYPE: Male, USNM 63359, and 22 paratypes, from El Salvador, E. J. Hambleton, collector, on yams and corn.

OTHER LOCALITIES: *Guatemala*: San Geronimo, Champion; "Salagar, El Chico, Ven. Jicama." *British Honduras*: Belize, Blancaneaux, 2d Jacoby collection. *Honduras*: Tela, W. M. Mann; La Ceiba, F. J. Dyer; Río Hondo, Blancaneaux, 2d Jacoby collection. *El Salvador*: La Ceiba, K. A. Salman. *Costa Rica*: Port Limón, P. J. Darlington, May 9, 1929.

REMARKS: Of the species with dark antennae, tibiae, and tarsi, this one is distinguished by the spot, sometimes lacking entirely, on

the anterior side of the pronotum being small and near the anterior margin. This spot, located on each side of the pronotum, is half hidden when viewed from above and is usually much smaller than in the other closely related species. The antennae tend to have pale brown tips. This is one of the two species figured by Jacoby (1892) under *Diabrotica sexplagiata*, the drawing having been made from a specimen from Belize, British Honduras, having no pronotal spots.

Iceloceras parviplagiatum teapense, new subspecies

FIGURE 2,*d*

About 4.5 mm. in length, elongate oblong oval, somewhat alutaceous, faintly shining, head and pronotum almost impunctate, elytra with dense coarse punctures; pale yellow, the pronotum with a black spot (usually small) on anterior lateral half on each side, the spot never extending as much as half-way down, in one specimen entirely lacking; elytra dark with three pale yellow spots and a pale margin on each, the pale spots sometimes confluent; antennae entirely dark, middle and posterior tibiae and tarsi dark, and femora dark at apex.

Head with interocular space half its width; smooth, impunctate, frontal tubercles distinct, a very short elevated line between antennal sockets not extending down front. Antennae usually entirely dark, but in two specimens the last two or three joints paler, 3d joint shorter than 4th. Prothorax wider than long with slightly curved sides and semicircular transverse depression across disk; alutaceous, very finely punctate; pale with a dark piceous spot on each side, in anterior half barely reaching half-way down, and usually small, in one specimen entirely lacking. Scutellum pale. Elytra densely and coarsely punctate with faint sign of longitudinal ridging; piceous with three large pale spots, often confluent, on each elytron, the margin pale. Epipleura disappearing at apical curve; last two ventral segments entirely dark on upper side; femora pale with dark apex; tibiae of anterior legs dark on one side, middle and posterior tibiae and tarsi entirely dark. Length 4.3 mm.; width 1.8 mm.

TYPE: Male, in Museum of Comparative Zoology (No. 29611), and six paratypes, from Teapa, Tabasco, Mexico, H. H. Smith, in 2d Jacoby collection, Bowditch collection. Also one specimen taken at Teapa by Salle, 1st Jacoby collection.

REMARKS: This subspecies is smaller and darker than the more southern race, having entirely dark antennae and usually larger side spots on the pronotum, although they are sometimes lacking. In both races is found the tendency for the elytral pale spots to be confluent.

Iceloceras vittatum, new species

FIGURE 5,b

About 4 mm. in length, elongate oblong oval, faintly shining, head and pronotum smooth, very finely punctate, elytra coarsely and densely punctate; pale yellow, the pronotum usually with a piceous vittate lateral marking on each side, variable in length, sometimes lacking, elytra with sutural and lateral deep brown vittae not joined at apex, femora pale with a dark streak, tibiae and tarsi in middle and posterior legs dark, tibiae of anterior pair with dark line, first three or four antennal joints pale, remainder dark.

Head smooth, shining, with distinctly marked frontal tubercles and short elevated line running down from between antennal sockets; entirely pale. Antennae with four basal joints paler than the piceous or brown outer joints, 3d joint shorter than 4th. Prothorax a little wider than long; with sides slightly curved; a semicircular transverse depression on disk; surface faintly alutaceous and finely punctate; pale yellow with reddish brown or piceous lateral vitta, sometimes lacking. Scutellum pale. Elytra pale with sutural and lateral brown vittae not united at the apex; surface densely and coarsely punctate, with no sign of costation. Epipleura vanishing at apical curve, last two ventral segments dorsally black with a pale median area. Femora pale with dark streak, anterior tibiae dark on one side, middle and posterior tibiae and tarsi entirely dark, and tibiae with tiny terminal spine. Middle tibiae in male notched. Length 4-4.5 mm.; width 1.7-2 mm.

TYPE: Male, USNM 63360, and nine paratypes, from San Marcos, Nicaragua, C. F. Baker collection (through Knab).

OTHER LOCALITIES: *Nicaragua*: Chinandega, Baker collection. *Mexico*: Jicaltepec, Vera Cruz; Tapachula, Chiapas, Höge; San Rafale; "Mexique."

REMARKS: This species is characterized by having vittate elytra, with the vittae not united at the apex. There is no sign of the elytral costation so common in the 6-spotted species. The specimen (one of two) figured by Jacoby (1887) under *Diabrotica serplagiata* and sent to me by G. E. Bryant from the British Museum is this species, but it does not have the usual dark piceous vittate marking on each side of the pronotum, although there is a faintly marked vitta there.

Iceloceras nymphaea (Jacoby)

FIGURE 4,g

Diabrotica nymphaea Jacoby, Biologia Centrali-Americana, Coleopt., vol. 6, pt 1. p. 541, 1887.

About 4 mm. in length, elongate oblong, shining, the elytra strongly and densely punctate, pale yellow brown with brown antennae having three apical joints pale; pronotum with a dark brown vitta on each side, elytra with a broad median dark brown vitta, apex of femora, tibiae and tarsi deeper brown.

Head shining, entirely pale brown, with well-marked frontal tubercles and carina extending down lower front. Antennae very long and slender, 3d joint half as long as 4th, brown with the three terminal joints pale. Pronotum a little broader than long with nearly straight sides, only shallowly depressed on each side in lower half; shining, impunctate, pale yellow-brown with a wide dark brown vitta on each side extending nearly the entire length. Scutellum pale. Elytra narrow and long, with small humeral prominences, densely and strongly punctate; pale yellow brown with a broad median dark brown vitta on each, wider at base and curving inwards toward the suture near apex. A few scattered hairs near apex of elytra. Body beneath entirely pale, femora with dark streak or apex dark, tibiae and tarsi deep brown. Anterior coxal cavities open, tibiae with terminal spine, first tarsal joint on hind legs about equal to remaining joints together, middle tibiae of male very deeply excised, claws appendiculate. Length 3.8–4.4 mm.; width 1.7–1.8 mm.

TYPE LOCALITIES: *Panama*: Bugaba, Volcán de Chiriquí, Boquete, Caldera, collected by Champion.

REMARKS: This is another species described as a *Diabrotica* that has appendiculate claws and in the male deeply excised middle tibiae. It belongs near the *Iceloceras serplagiatum* group.

***Iceloceras biplagiatum*, new species**

FIGURE 5,e

About 5 mm. in length, narrowly oblong oval, head and prothorax smooth and shining, elytra densely and coarsely punctate and with faint median costae, prothorax with semicircular transverse depression; pale yellow with head from tubercles upwards piceous, antennae piceous except the two pale distal joints, the tips of these being dark, prothorax pale with a large median dark spot, elytra piceous with pale margin and a roundish pale median spot on each elytron, body beneath with breast and abdomen brown, femora dark on upper side and at apex on posterior femora, tibiae and tarsi piceous, middle tibiae of male with notch near apex.

Head with interocular space about half width of head, eyes large, antennal sockets contiguous, tubercles distinctly marked, a shallow semicircular depression above tubercles, this upper portion of head shining piceous and finely punctate, below antennal sockets the front

broad, moderately long and pale, a shallow depression in middle, coarsely and densely punctate, labrum short. Antennae long and slender, with joints 3-11 subequal with 4th and 5th joints longest, piceous except the two distal joints and these with a darker tip. Prothorax approximately one-third wider than long with nearly straight sides, only slightly tapering apically; a semicircular transverse depression on disk, shining, impunctate, pale yellow with a large median dark brown spot nearest anterior margin and extending to below middle. Scutellum dark. Elytra widening slightly towards apex, densely and coarsely punctate, with faint costae not reaching either base or apex; piceous with a pale margin, wider at apex, and a large, pale, roundish spot in middle of each elytron. Epipleura pale, vanishing at apical curve. Body beneath with breast and abdomen brown, the former with pale sides and the latter having tip of each segment pale, lightly pubescent. Legs with the pale femora bearing a dark streak on top, and hind femora dark at apex, tibiae and tarsi dark; middle tibiae of male with a notch near apex; claws appendiculate. Length 4.8 mm.; width 2 mm.

TYPE: Male, USNM 63361, from Isiamas, Bolivia, W. M. Mann, Mulford Biological Expedition, 1921-1922.

REMARKS: This is clearly closely related to *I. sexplagiatum*, although with only one pale spot on each elytron, and a median dark spot on the pronotum.

Iceloceras ruatanæ (Jacoby)

FIGURE 5,*d*

Neobrotica ruatanæ Jacoby, Biologia Centrali-Americana, Coleopt., vol. 6, Suppl., p. 335, 1892.

About 6 mm. in length, elongate oblong oval, shining, the elytra obsolete punctate, prothorax with a wide transverse depression; elytra with deep incurving intrahumeral sulcus extending nearly a third of the way down; pale yellow, the antennae deepening in color towards apex, elytra with a violaceous brown median marking, beginning about scutellum and curving down to cover whole width of elytra before apex, leaving the margin pale; middle tibiae of male notched.

Head with interocular space half width of head, shining, finely punctate on occiput, frontal tubercles distinctly marked, a slight median elevation in lower front, labrum wide; entirely pale except the brown tips of mandibles. Antennae long and slender, the 2d and 3d joints short and subequal, rest long, the joints gradually becoming a little shorter near apex and deeper in color. Prothorax somewhat wider than long with only slightly curved sides, not much narrower anteriorly; a wide transverse depression across disk; surface

entirely pale, shining, impunctate. Scutellum pale. Elytra a little wider towards apex, with wide explanate margin, a well-marked intrahumeral sulcus curving towards suture; surface obsoletely punctate, shining, pale with a violaceous brown sutural mark that is wide about suture, curving down to a narrow stretch in middle of elytra and again widening beyond the middle to cover all but margin in apical third. Epipleura vanishing before apical curve. Body beneath and legs entirely pale. Middle tibiae in male notched, a fine spine on tibiae; claws appendiculate. Length 6 mm.; width 2.4 mm.

TYPE: In British Museum (Natural History), from Ruatan Island, Honduras.

OTHER LOCALITIES: *Honduras*: Puerta Castilla, Jos. Bequaert, April (MCZ); "Roatan Id.," F. J. Dyer, Mar. 28, 29, 1916.

REMARKS: In the short third antennal joint this species resembles *Luperosoma*, but there is no enlargement of the antennal joints.

Iceloceras flavocyaneum, new species

FIGURE 5,a

Between 4 and 5 mm. in length, elongate oblong oval, shining, nearly impunctate, the elytra very finely punctate, yellow with posterior part of elytra violaceous; antennae pale with the last five joints a little darker; middle tibiae notched in male.

Head with interocular space half its width, smooth, shining, impunctate, pale yellow; frontal tubercles not very distinct, a median line from between antennal sockets. Antennae with 2d and 3d joints short, 4-11 long and subequal, the five basal joints pale, the remainder reddish brown. Prothorax a little wider than long with slightly curved sides, shallowly depressed in lower half, shining, impunctate, pale yellow. Scutellum pale. Elytra shining, very finely punctate, pale yellow with a violaceous spot covering apical third, leaving margin pale (in one specimen from Panama the suture also pale). Epipleura vanishing before apical curve. Body beneath entirely pale, tibiae with tiny terminal spine; claws appendiculate, middle tibiae notched in male. Length 4-5.3 mm.; width 1.8 to 2.2 mm.

TYPE: Male, USNM 63362, from Santa Lucretia, Tehuantepec, Mexico, W. M. Mann; one paratype in Museum of Comparative Zoology.

OTHER LOCALITIES: Santa Lucretia, Vera Cruz, Mexico, F. Knab; XX Plantation, Panama.

REMARKS: This species is closely related to *I. ruatanae* (Jacoby) with the same short 2d and 3d antennal joints, and is intermediate in the matter of generic placing between *Iceloceras* and *Luperosoma*.

Genus *Luperosoma* Jacoby

Luperosoma Jacoby in Whymper, Travels amongst the Great Andes of the Equator, Supplementary Appendix, p. 87, 1891.

The original generic description is as follows:

Male. Body elongate; eyes entire; third joint of palpi robust, swollen; frontal tubercles very swollen, transverse; antennae subfiliform, incrassate towards the apex, second and third joints very short, subequal, fourth as long as the two preceding joints together; thorax square-shaped, transversely depressed at the disk; apex of the scutellum obtuse; elytra irregularly punctured, their epipleurae indistinct below the middle; tibiae without spine "(not true)," the intermediate emarginate at the apex; the inner margin produced in shape of a spine; posterior first tarsal joint as long as the two following ones united; claws appendiculate; anterior coxal cavities closed. Female. Intermediate tibiae without emargination, prosternum not visible.

Type (of genus) *Luperosoma marginata*.

I am obliged to erect this genus for the reception of a small species of *Galeruca* having the appearance of *Diabrotica* or *Luperus*, and distinguished from either and other genera by the unarmed tibiae [there is a small spine on the middle and posterior tibiae]; short second and third joints of antennae and the other characters given above. The curious structure of the tibiae in the male is another peculiarity of the genus which would enter Chapuis' 26th group, the *Platyxanthinae*.

Key to species of *Luperosoma*

- | | |
|-------------------------------------------------------------------------------------------------------------------|-----------------------------|
| 1. North American | 2 |
| South American | 4 |
| 2. Elytra distinctly costate | subsulcatum (Horn) |
| Elytra not distinctly costate | 3 |
| 3. Elytra piceous with pale margin | parallelum (Horn) |
| Elytra entirely piceous | schwarzi (Horn) |
| 4. Thorax entirely dark | nigrum , new species |
| Thorax pale with dark markings | 5 |
| 5. Large, 5 mm., last three antennal joints in male enlarged, pronotum with heavy lateral dark markings | amplicorne (Baly) |
| Smaller, 3-3.5 mm., joints 8-10 in male enlarged, pronotum pale with median dark spot | marginatum Jacoby |

Luperosoma marginatum Jacoby

FIGURE 4,c

Luperosoma marginata Jacoby, in Whymper, Travels Amongst the Great Andes, Supplementary Appendix, p. 87, 1891.

Phyllecthrus marginatus Weise, in Junk, Coleopterorum catalogus, pt. 78, p. 109, 1924.

From 3-3.5 mm. in length, oblong oval, shining, the elytra very faintly punctate, pale yellow-brown with piceous antennae and deep brown occiput of head, a dark brown median area on pronotum, the elytra sometimes with a wide brown median vitta on each elytron, in other specimens this vitta so pale as to be nearly indistinct; body beneath dark, legs for the most part pale, middle tibiae in male notched, and antennal joints 8-10 swollen.

Head with interocular space half its width, frontal tubercles swollen, and interantennal area carinate, upper part of head deeper brown than lower. Antennae fully half as long as beetle, the basal joints a little paler, rest piceous, 2d and 3d joints short and together barely as long as 4th, remainder shorter than 4th and subequal, joints 8-10 swollen in male. Prothorax wider than long with nearly straight sides, a faint semicircular depression in lower half, nearly impunctate, shining, dirty yellow-brown with a roundish piceous median area in anterior half. Scutellum dark. Elytra wider towards apex and with small humeral prominences and short intrahumeral sulcus; shining, very faintly punctate, dirty yellow-brown, in some specimens a wide piceous vitta, in others this vitta pale reddish brown and indistinct. Epipleura extending to middle of elytra. Body beneath dark, legs pale, the two anterior tibiae with a pale reddish brown area in middle, in the male the anterior tibiae somewhat swollen and the first tarsal joint cylindrical and short, the middle tibiae notched near apex, the middle and posterior tibiae (contrary to Jacoby's description) with a very fine, inconspicuous spine; claws appendiculate. Length 3-3.5 mm.; width 1.5 mm.

TYPE: Probably in the Bowditch collection, Museum of Comparative Zoology, where there are three specimens (named in Jacoby's description) from Quito, Ecuador, alt. 9500 ft., Ed Whymper collector, bearing an old label "*Luperosoma marginata*," written by Jacoby, 2d Jacoby collection.

REMARKS: These three specimens in the Bowditch collection are probably the three original ones described by Jacoby (1891) although in the text of his description the locality is given as "Panecillo Quito, 10,000 ft."

Luperosoma nigrum, new species

FIGURE 4,e

Approximately 3 mm. in length, oblong oval, shining, the elytra distinctly punctate; entirely black except for a narrow pale sutural and marginal edging on the elytra; antennal joints 8-10 enlarged and the middle tibiae notched in the male.

Head with interocular space a little more than half its width, polished, impunctate, entirely black, the frontal tubercles distinct and a broad carina between antennal sockets not much produced. Antennae entirely black, in male joints 8-10 swollen, joints 2, 3 short and together about equal to 4. Prothorax wider than long with nearly straight sides, obsoletely and faintly punctate, shining, a semicircular depression across disk; entirely black. Scutellum black. Elytra moderately densely and distinctly punctate, shining black with pale yellow sutural stripe and pale margin. Epipleura pale, extending to

apical curve. Body beneath entirely black and shining; anterior tibiae in male somewhat thickened, middle tibiae widely emarginate with prominent hook near apex, tibiae with small spine at apex. Length 3 mm.; width 1.3 mm.

TYPE: Male in Museum of Comparative Zoology (No. 29610); one paratype, from "Colombien" (USNM 63363).

REMARKS: The wide emargination of the middle tibiae in the male is greater than in any of the rest of the species with excised tibiae, but it is only a matter of degree. The enlargement of the antennal joints is the same as in *L. marginatum* Jacoby. In fact, except for the wider notching of the tibiae and the darker color, which has the same pattern on the elytra as in *marginatum*, this species closely resembles *L. marginatum* and might be only a color phase.

Luperosoma amplicorne (Baly)

FIGURE 4,*h*

Diabrotica amplicornis Baly, Trans. Ent. Soc. London, p. 446, 1886.

About 5 mm. in length, oblong oval, the pronotum and elytra distinctly punctate, shining, pale yellow-brown, the head with two dark spots on occiput and dark labrum, antennae with joints 9-11 dark and in the male thickened, prothorax with broad dark lateral areas, elytra with median and lateral dark vittae joined at apex, legs and undersurface, except prosternum, dark. Middle tibiae of male notched.

Head with interocular space half its width; occiput impunctate, with wide dark areas on either side narrowly separated by pale median line; front brownish, the frontal tubercles much swollen, the inter-antennal area with a carina down front, labrum dark. Antennae in male with joints 9-11 dark and enlarged in the male, no female examined. Prothorax wider than long with slightly curved sides and semicircular depression in lower half, surface shining and distinctly punctate, yellow-brown with wide black area on either side extending from anterior nearly to basal margin. Scutellum brown. Elytra moderately shining, quite densely and rather coarsely punctate, a depression from intrahumeral sulcus down about one-fourth the length of the elytra; yellow-brown with a wide dark median and lateral vitta uniting shortly before the apex, leaving the suture and the lateral margin narrowly pale, and a slightly broader median pale vitta. Epipleura disappearing before apical curve, body beneath (except prosternum) and legs deep brown, middle tibiae of male notched near apex; tibiae with fine terminal spine; anterior tibiae swollen in male, first tarsal joint of anterior legs cylindrical, first tarsal joint of hind legs as long as remaining joints. Claws appendiculate. Length 4.8 mm.; width 2.2 mm.

TYPE: In British Museum (Natural History), collected at Paran , Brazil.

REMARKS: What appears to be a paratype of this is in the Bowditch collection, 1st Jacoby collection, Museum of Comparative Zoology. No females have been examined.

Luperosoma parallelum (Horn)

FIGURE 4,b

Phyllethr s parallel s Horn, Trans. Amer. Ent. Soc., vol. 20, p. 126, 1893.

About 5 mm. in length, elongate oblong oval, rather flat, moderately shiny although alutaceous, and with shallow, not dense elytral punctation; head reddish brown, deeper brown over occiput, prothorax pale yellowish brown, elytra piceous with pale margin, legs and antennae pale, the former with dark streaks, abdomen and part of breast piceous; antennae in male enlarged at end, and middle tibiae notched near apex.

Head with deeper reddish brown color over occiput becoming pale yellow down front, alutaceous and obsoletely punctate, with swollen frontal tubercles and slightly produced carina between antennal sockets. Antennae pale except basal joint, with a deeper brown on upper surface, 2d and 3d joints short, 4th longest of all, thence gradually diminishing in length to terminal joint, which in male is enlarged. No female examined. Prothorax about a third wider than long with sides nearly straight, only slightly curved, anterior angles toothed, basal angles obliquely cut, disk with semicircular depression in basal half and a smaller one in middle of anterior half; pale yellow, often with spot or widely brown or piceous areas on each side. Scutellum reddish brown. Elytra somewhat depressed, shining although distinctly alutaceous and with scattered shallow punctures, deep piceous except the pale lateral (not apical) margin, sometimes slightly paler along sutural edges. Epipleura pale. Body beneath with breast brownish, abdomen even deeper brown, legs pale with a dark streak along upper side; middle tibiae of male notched near apex, first tarsal joint of anterior legs in male short; middle and posterior tibiae with fine spine at apex. Claws appendiculate. Length 4.3–5.2 mm.; width 1.8–2 mm.

TYPE: Not examined by the writer, but H. J. Grant of the Philadelphia Academy of Sciences writes as follows: "Type No. 3792. Labeled holotype. Sex not indicated. Locality: 'Tex.' In the Horn collection there are two additional specimens—one with no data; one labeled simply 'Tex.'"

OTHER LOCALITIES: *Texas*: Round Mountain (Fall collection); Douglass, H. S. Barber; College Station, W. D. Pierce. *Oklahoma*: Ardmore, C. R. Jones. *Kansas*: West Kansas, Popenoe; Onaga,

F. F. Crevecoeur, Wickham; Topeka, Popenoe; Riley County, Popenoe.

REMARKS: The characters described by Jacoby (1891) for the genus *Luperosoma* so well fit the species described from North America by Horn (1893, 1896) as *Phyllethrus parallelus*, *P. schwarzi*, and *P. subsulcatus* that I am transferring Horn's species, leaving to *Phyllethrus* the original ones described by LeConte (1865, 1868, 1884), who took as type of that genus *Phyllethrus dorsalis* (Olivier).

***Luperosoma subsulcatum* (Horn)**

FIGURE 4,f

Phyllethrus subsulcatus Horn, Trans. Amer. Ent. Soc., vol. 20, p. 126, 1893.

About 3.5 mm. in length, elongate oblong oval, shining although somewhat alutaceous, elytra with numerous longitudinal ridges between which are semistriate, moderately coarse punctures; head, antennae, prothorax, abdomen, tibiae, and tarsi reddish brown, elytra piceous; antennae in male flatly widened towards apex, middle tibiae notched near apex.

Head shining reddish brown, smoothly rounded over occiput with some punctures in the depression over the frontal tubercles, tubercles swollen, a faint median line; antennal sockets depressed but the area between not prominently produced into a carina; eyes widely separated and from above not showing their comparatively large size. Antennae stout in male, the 2d and 3d joints short and robust, 4th longest, 5th and 6th shorter and equal, 7th cylindrical and a little shorter, 8th and 9th short and broad, 10th and 11th very broad and long; in the female, 3d and 4th joints longer than 2d and subequal, 4th longer than succeeding joints which are not enlarged. Prothorax almost as long as wide, with only slightly curved sides, a small tooth at apex, shining reddish brown sometimes with a median round brownish or piceous area; without much sign of semicircular depression on most specimens, a few inconspicuous punctures along base. Scutellum dark. Elytra usually entirely piceous (in one specimen the base and side from humerus down reddish brown, the rest of elytra piceous); shining although faintly alutaceous, a little wider than prothorax and narrowly elongate; humeri moderately prominent, numerous irregular longitudinal ridges between rows of punctures, the punctures moderately coarse and irregularly striate, both punctures and ridges becoming obsolete near apex. Epipleura disappearing at apical curve; body beneath with breast dark, prosternum and abdomen pale, femora more or less dark, tibiae and tarsi paler brown. Middle and posterior tibiae with a fine spine, and in male, the anterior 1st tarsal joint cylindrical and twice as broad as the next; middle tibiae notched, claws appendiculate. Length 3–4.3 mm.; width 1.3–1.7 mm.

TYPE: Not examined by writer but H. J. Grant of the Philadelphia Academy of Sciences writes as follows: "Type No. 3794. Lectotype. Male. Locality: Yuma. There are no other specimens of this species in the Horn collection." Horn wrote: "It occurs in New Mexico, Texas, and Arizona, in the latter region near Yuma and Santa Rita Mts."

OTHER LOCALITIES: *Arizona*: Bear Valley, Atascosa Mts., F. G. Werner; 9 miles west of Benson, F. G. Werner; Brown's Canyon, Baboquivari Mts., F. G. Werner and G. D. Butler; Huachuca Mts.; Marana, Butler and Werner; Nogales, Santa Cruz County, Nunenmacher; 6 miles north of Nogales, 3500 ft., Werner and Nutting; Oracle Junction, Werner and Nutting; 6 miles east of Peace, F. G. Werner; Pima, 3000 ft.; 2 miles east of Ruby, F. G. Werner; Sabino Canyon, Santa Catalina Mts., Werner and Nutting; 8 miles east of San Vicente, F. G. Werner, A. A. Nichol, Tucson Mts., G. D. Butler. *Texas*: El Paso. *New Mexico*: Mesilla Park.

REMARKS: The semicostate elytra readily distinguish this species.

Luperosoma schwarzi (Horn)

FIGURE 4,a

Phyllecthrus schwarzi Horn, Proc. California Acad. Sci., ser. 2, vol. 6, p. 377, 1896.

About 5 mm. in length, elongate oblong oval, moderately shiny, although somewhat alutaceous, antennae heavy in male with the last three joints wider, middle tibiae notched near apex in male; prothorax with a depressed spot on each side; head and prothorax reddish brown, the latter with piceous lateral darkening; elytra, legs, and under-surface dark; elytra with faint irregular costae; the punctures with a suggestion of irregular striation in basal half.

Head smooth and shiny above the swollen frontal tubercles, a slightly produced short carina between antennal sockets, deep orange-brown with darker labrum. Antennae of male with the three basal joints shining piceous, remainder densely pubescent with grayish brown hairs, 2d and 3d joints short, 4th longest, last three joints heavier and wider; in female, the joints longer and more slender, 2d and 3d joints together equalling 4th. Prothorax approximately one-third wider than long, nearly rectangular, with only slightly rounded sides, deep yellow-brown with the sides piceous, on each side and in middle of base a shallow depression; alutaceous and finely and inconspicuously punctate near base. Scutellum dark. Elytra long and narrow with slight humeral prominences and faint irregular costae near base, punctation with a tendency to becoming striate near base, not very dense or coarse and becoming much finer near apex; surface alutaceous but shiny, deep piceous. Epipleura vanishing at apical curve. Body beneath entirely dark, legs dark except a little paler at

knees; middle tibiae of male notched near apex, tibiae with fine spine, claws appendiculate. Length 4.5–5.0 mm.; width 2 mm.

TYPE: Not examined by writer, but H. J. Grant of the Philadelphia Academy of Sciences writes as follows: "Type No. 3793. Holotype. Male. Locality: Tex. In the Horn collection there are seven paratypes, these being from Texas, Arizona and New Mexico, and four other specimens from Arizona, Kansas and California."

OTHER LOCALITIES: Houston, Tex., on *Helianthus*; Shreveport, La., F. V. Mally.

REMARKS: Horn originally mistook this for *Phyllecthrus dorsalis* (Olivier), and three years later corrected this error, which E. A. Schwartz had pointed out to him, and described it again as new.

Genus *Ectmesopus* Blake

FIGURE 6, a–k

Ectmesopus Blake, Proc. Ent. Soc. Washington, vol. 42, p. 95, 1940.

Small, slender beetles 2–4 mm. long, with long slender legs, usually pale yellow or reddish with lustrous green, blue or violet elytra. Head smoothly rounded, without depressions or protuberances, frontal tubercles not pronounced. Antennae usually not much over half the length of the beetles, in one species nearly the length. Usually some abnormality in the apical antennal joints, 7, 8, 9, 10 or 11 of the male. In one species, the one with the long antennae, this abnormality in the 3d joint. Prothorax from one-fourth to one-third wider than long, with the sides only slightly curved, often nearly straight, narrowly margined and with a small seta-bearing pore at the corners, hind margin nearly straight; the disk not at all depressed or deeply punctate, but usually smoothly rounded and polished. Elytra wider than the prothorax with a small humeral prominence, and usually a little wider in the apical half. Beneath, the epipleura gradually disappear towards the apex. Anterior coxal cavities open. In the male, the front tibiae frequently stout and the middle tibiae with a deep notch on the inside near the apex. Tibiae with a tiny spur, extremely hard to detect in some specimens. First joint of the hind tarsi equal to or longer than the following. Claws with a small basal tooth.

TYPE OF GENUS: *Ectmesopus darlingtoni* Blake.

Key to species of *Ectmesopus*

1. Prothorax entirely dark without any pale areas, joints 8–10 of male antennae deformed. Jamaica *tristis* Blake
- Prothorax entirely pale or pale with dark markings 2
2. Prothorax pale with dark markings 3
- Prothorax entirely pale 7

3. Elytra shining green with a broad irregular pale band. Puerto Rico. **zonatus** Blake
Elytra entirely dark 4
4. Antennae extending much below the middle of the elytra, in male the 3d joint very tiny, in both sexes the 4th joint very long. Haiti. **longicornis** Blake
Antennae not reaching beyond the middle of the elytra, mostly not so far as the middle 5
5. Prothorax with a broad, often T-shaped median marking extending nearly the whole length; 10th joint of male antennae slightly enlarged. Cuba. **occipitalis** Blake
Prothorax with lateral dark marks. 6
6. Prothorax with a vitta on each side, this sometimes very short, sometimes well marked and extending down the whole side; 10th joint of male antennae much enlarged. Puerto Rico **vitticollis** Blake
Prothorax with sides near margin sometimes deep brown; antennal joints in male not deformed or enlarged. Dominican Republic. **angusticollis** Blake
Prothorax with lateral margin piceous black. Tortue Island, Haiti. **leonardorum** Blake
7. Notch in middle tibiae not deep, little more than an emargination; male antennae not deformed or enlarged or unlike those of the female. Dominican Republic **angusticollis** Blake
Notch in middle tibiae of male deep, forming a sharp tooth on upper inside margin; last joints of male antennae either deformed or enlarged . . . 8
8. Antennae of both sexes very similar up to the last joint and in male the last joint enlarged. Cuba **malachiodes** (Suffrian)
The 10th antennal joint and sometimes others of the male deformed . . . 9
9. Antennae dark with the last 2 or 3 joints pale, joints 6-9 in male triangular, 10th much enlarged. Haiti **darlingtoni** Blake
Antennae not bicolored, joints 6 to 9 in male not at all triangular . . . 10
10. Head, thorax, legs and antennae pale yellowish; 10th antennal joint in male much enlarged. Dominican Republic **pallidus** Blake
Head, thorax, and legs reddish, antennae with dark outer joints; 10th joint in male constricted and not any longer than 9th. Dominican Republic. **crassicornis** Blake

Since all but one of the species given in the above key have been described by the writer (Blake, 1940), it does not seem necessary to repeat the descriptions in detail, as the key and illustrations are sufficient for purposes of identification.

Ectmesopus leonardorum, new species

FIGURE 6e

Approximately 2.7 mm. in length, elongate oblong oval, shining, inpunctate, yellow-brown with piceous lateral margin to the pronotum and metallic green elytra; middle tibiae of male widely and shallowly emarginate; antennae with distal joints missing.

Head with interocular space more than half width of head, entirely pale, smoothly rounded over occiput, a slight depression over the bulging frontal tubercles, a short carina between antennal sockets running

down the lower front. Antennae with the four distal joints missing, pale yellow-brown, 3d joint longer than 2d and shorter than 4th. Prothorax subquadrate, nearly as long as wide, with only slightly curved sides, pale yellow-brown, the lateral margins piceous black, shining, impunctate; a dent in middle of disk (probably from immature softness of specimen), the surface in life probably without depression of any sort. Scutellum yellowish brown. Elytra shining metallic green, impunctate. Undersurface and legs entirely pale yellow-brown; anterior tibiae thickened in male, middle tibiae widely and shallowly emarginate near apex. Length 2.7 mm.; width 1 mm.

TYPE: Male, USNM 63364, from Bassin Bleu, Tortue Island, Haiti, collected by E. C. and G. M. Leonard.

REMARKS: Although the specimen is immature and badly shrivelled, and the distal joints of the antennae are missing, this can readily be seen as a distinctive little beetle with its heavy dark markings on the lateral margin of the prothorax. In addition, the middle tibiae of the male are widely emarginate, in this respect resembling *E. angusticollis* Blake from the Dominican Republic. It differs from that species in the coloration of the margin of the prothorax as well as in having metallic green instead of blue elytra, and also in being even narrower. It is unfortunate that the end joints of the antennae, usually so abnormal in the male, are lacking.

Genus *Platymorpha* Jacoby

Platymorpha Jacoby, *Biologia Centrali-Americana*, Coleopt., vol. 6, pt. 1, p. 602, 1888.

The original generic description is as follows:

Body elongate; antennae longer than the body, the second and third joints extremely short, the other joints elongate-triangular; thorax subquadrate, the disc depressed; elytral epipleurae continued below the middle; the posterior tibiae mucronate, the first joint of the posterior tarsi as long as the following three joints together; claws appendiculate; the anterior coxal cavities open. Anterior tibiae and the first joint of the anterior tarsi strongly dilated in the typical species in the male.

Type *Platymorpha variegata*.

In general appearance *Platymorpha* agrees with *Chthoneis*; the third joint of the antennae, however, is extremely small, the posterior tibiae are armed with a spine. The last named character proves the affinity of *Platymorpha* with *Luperus* and its allies. I probably have only male specimens of *P. variegata* before me; these are at once distinguished by the curious dilation of the anterior tibiae and the first joint of the anterior tarsi. The two species I refer to this genus inhabit Mexico and Guatemala.

To Jacoby's description may be added that it is possible these two species he has assigned to the genus are not congeneric. He originally described *smaragdipennis* in the genus *Chthoneis*. The anterior tibiae and first tarsal joint in the male in *Platymorpha variegata* are much

swollen and resemble that of *Cerotoma dilatipes* Jacoby, while the beetle itself bears a striking resemblance to *Phyllethrus dorsalis* (Olivier). Although J. A. Wilcox has written me that *Platymorpha variegata* has excised middle tibiae in the male, I have been unable to detect it in the mounted specimens in the Bowditch collection. *P. smaragdipennis*, on the other hand, has no such dilation in the front legs, the middle tibiae are clearly excised, and the shape of the beetle is different. In one point both agree: in the short, truncate 3d antennal joint.

I am including in this genus, purely because of the similarity of its excised middle tibiae and the short third antennal joint with its truncate apex, a third species from Peru. It is not closely related to either *P. variegata* or *P. smaragdipennis* and someday will doubtless be referred elsewhere.

***Platymorpha smaragdipennis* Jacoby**

FIGURE 5,c

Platymorpha smaragdipennis Jacoby, Proc. Zool. Soc. London, p. 786, 1879.

About 6 mm. in length, elongate oblong, shining, the elytra densely and coarsely punctate; head, prothorax, femora, and undersurface yellow, elytra shining metallic green, tibiae and tarsi deep brown.

Head with a few minute punctures, carina and encarpae ill-defined. Antennae long, black, the 2d and 3d joints very small, truncate at apex; remainder long, densely covered with short hairs. Prothorax subquadrate, wider at middle, contracted near the base; impunctate, very shiny, yellow, disk in basal half with transverse depression. Scutellum pale. Elytra bright metallic green, closely and coarsely rugose punctate. Body beneath and femora pale, tibiae and tarsi dark; middle tibiae of male deeply excised; tibiae with spine, claws appendiculate.

TYPE: Male in Bowditch collection from Capetillo, Guatemala, and two paratypes (one male, one female).

***Platymorpha albiventris*, new species**

FIGURE 4,d

About 4 mm. in length, oval, parts of the prothorax and the entire elytra densely punctate, shining black with pale abdomen and the 8th and 9th antennal joints (possibly also the terminal ones which are missing in the single male specimen examined) pale, prothorax with a transverse scooped-out depression; middle tibiae of male excised.

Head with interocular space half width of head, occiput polished, frontal tubercles distinctly marked, a small carina between antennal sockets, lower front somewhat bulging. Antennae in male with 3d joint very short, about half length of 2d, remainder long and slender;

only nine joints of one antenna and the basal joint of the other left; joints 1-7 black, 8 and 9 pale. Prothorax not quite twice as wide as long with nearly straight sides and scooped-out transverse depression in basal half; except in this depression the surface punctate; shining black. Scutellum black. Elytra widened toward apex with wide explanate margin, very shiny black with moderately dense punctation; no suggestion of costae. Body beneath shining black with pale abdomen; anterior coxal cavities open, anterior tibiae in male thickened, middle tibiae in male excised near apex; first tarsal joint of hind legs longer than succeeding joints together; claws appendiculate. No terminal spurs discernible on tibiae. Length 4 mm.; width 2.2 mm.

TYPE: Male in Cornell University collection, from LaChorrera, Putumayo District, Peru, collection Aug. 17-20, 1926.

REMARKS: This is another galerucid that has characters similar to the group with excised tibiae but differs in the male sex characters, being unusual in the shortness of the 3d antennal joint. In this case the 3d joint is unlike the short 3d joint found often in *Diabrotica*, *Luperosoma*, or *Iceloceras* in that it is not so long as the second, truncate at the apex, and cup-shaped. It most closely resembles the antennae of the two species of *Platymorpha*, and I am tentatively placing the species in that genus although it is not very closely related.

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